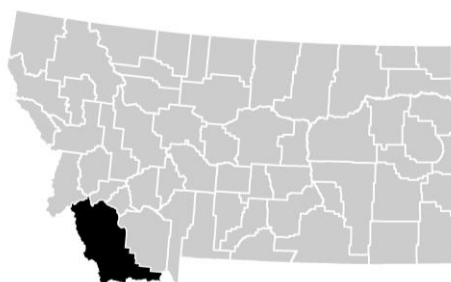


FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 2 OF 4



BEAVERHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BEAVERHEAD COUNTY, UNINCORPORATED AREAS	300001
DILLON, CITY OF	300088
LIMA, TOWN OF	300177



FEMA

PRELIMINARY
01/15/2020

EFFECTIVE:

TBD

FLOOD INSURANCE STUDY NUMBER

30001CV002A

Version Number 2.6.4.6

TABLE OF CONTENTS

Volume 1

	<u>Page</u>
SECTION 1.0 – INTRODUCTION	1
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	8
SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS	19
2.1 Floodplain Boundaries	19
2.2 Floodways	25
2.3 Base Flood Elevations	26
2.4 Non-Encroachment Zones	27
2.5 Coastal Flood Hazard Areas	27
2.5.1 Water Elevations and the Effects of Waves	27
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	27
2.5.3 Coastal High Hazard Areas	27
2.5.4 Limit of Moderate Wave Action	27
SECTION 3.0 – INSURANCE APPLICATIONS	27
3.1 National Flood Insurance Program Insurance Zones	27
SECTION 4.0 – AREA STUDIED	28
4.1 Basin Description	28
4.2 Principal Flood Problems	29
4.3 Non-Levee Flood Protection Measures	29
4.4 Levees	30
SECTION 5.0 – ENGINEERING METHODS	30
5.1 Hydrologic Analyses	31
5.2 Hydraulic Analyses	40
5.3 Coastal Analyses	48
5.3.1 Total Stillwater Elevations	48
5.3.2 Waves	48
5.3.3 Coastal Erosion	49
5.3.4 Wave Hazard Analyses	49
SECTION 6.0 – MAPPING METHODS	49
6.1 Vertical and Horizontal Control	49
6.2 Base Map	50
6.3 Floodplain and Floodway Delineation	51
6.4 Coastal Flood Hazard Mapping	74
6.5 FIRM Revisions	74
6.5.1 Letters of Map Amendment	74

TABLE OF CONTENTS - continued

Volume 1 - continued

6.5.2	Letters of Map Revision Based on Fill	74
6.5.3	Letters of Map Revision	75
6.5.4	Physical Map Revisions	75
6.5.5	Contracted Restudies	76
6.5.6	Community Map History	76
SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION		77
7.1	Contracted Studies	77
7.2	Community Meetings	80
SECTION 8.0 – ADDITIONAL INFORMATION		82
SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES		83

Figures

	<u>Page</u>
Figure 1: FIRM Index	10
Figure 2: FIRM Notes to Users	12
Figure 3: Map Legend for FIRM	15
Figure 4: Floodway Schematic	26
Figure 5: Wave Runup Transect Schematic	27
Figure 6: Coastal Transect Schematic	27
Figure 7: Frequency Discharge-Drainage Area Curves	39
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	48
Figure 9: Transect Location Map	49

Tables

	<u>Page</u>
Table 1: Listing of NFIP Jurisdictions	3
Table 2: Flooding Sources Included in this FIS Report	20
Table 3: Flood Zone Designations by Community	28
Table 4: Basin Characteristics	28
Table 5: Principal Flood Problems	29
Table 6: Historic Flooding Elevations	29
Table 7: Non-Levee Flood Protection Measures	30
Table 8: Levees	30
Table 9: Summary of Discharges	32
Table 10: Summary of Non-Coastal Stillwater Elevations	39
Table 11: Stream Gage Information used to Determine Discharges	39
Table 12: Summary of Hydrologic and Hydraulic Analyses	42
Table 13: Roughness Coefficients	48
Table 14: Summary of Coastal Analyses	48
Table 15: Tide Gage Analysis Specifics	48

TABLE OF CONTENTS - continued

Volume 1 - continued

Table 16: Coastal Transect Parameters	49
Table 17: Summary of Alluvial Fan Analyses	49
Table 18: Results of Alluvial Fan Analyses	49
Table 19: Countywide Vertical Datum Conversion	50
Table 20: Stream-Based Vertical Datum Conversion	50
Table 21: Base Map Sources	50
Table 22: Summary of Topographic Elevation Data used in Mapping	52
Table 23: Floodway Data	53
Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams	74
Table 25: Summary of Coastal Transect Mapping Considerations	74
Table 26: Incorporated Letters of Map Change	75
Table 27: Community Map History	77
Table 28: Summary of Contracted Studies Included in this FIS Report	77
Table 29: Community Meetings	81
Table 30: Map Repositories	82
Table 31: Additional Information	82
Table 32: Bibliography and References	84

Volume 2

Exhibits

Flood Profiles	<u>Panel</u>	
Alder Creek	001	P
Beaverhead River	002-086	P
Beaverhead River Lower Split 1	087-089	P
Beaverhead River Lower Split 2	090-092	P

Volume 3

Exhibits

Flood Profiles	<u>Panel</u>	
Beaverhead River Lower Split 4	093-098	P
Beaverhead River Lower Split 5	099-100	P
Beaverhead River Lower Split 6	101-103	P
Beaverhead River Lower Split 7	104	P
Beaverhead River Lower Split 8	105-106	P
Beaverhead River Overbank	107	P
Big Hole River	108-109	P
Big Hole River West Channel	110	P
Blacktail Deer Creek	111-155	P
Blacktail Meadows	156-159	P
Canyon Ditch Split	160-164	P
Dillon Canal	165-168	P
Gleed Ditch	169-170	P

Volume 3

TABLE OF CONTENTS - continued

Volume 3 - continued

Exhibits

Flood Profiles	<u>Panel</u>	
Guidici Ditch	171-172	P
Junction Creek	173-179	P
Junction Creek Overflow	180-185	P

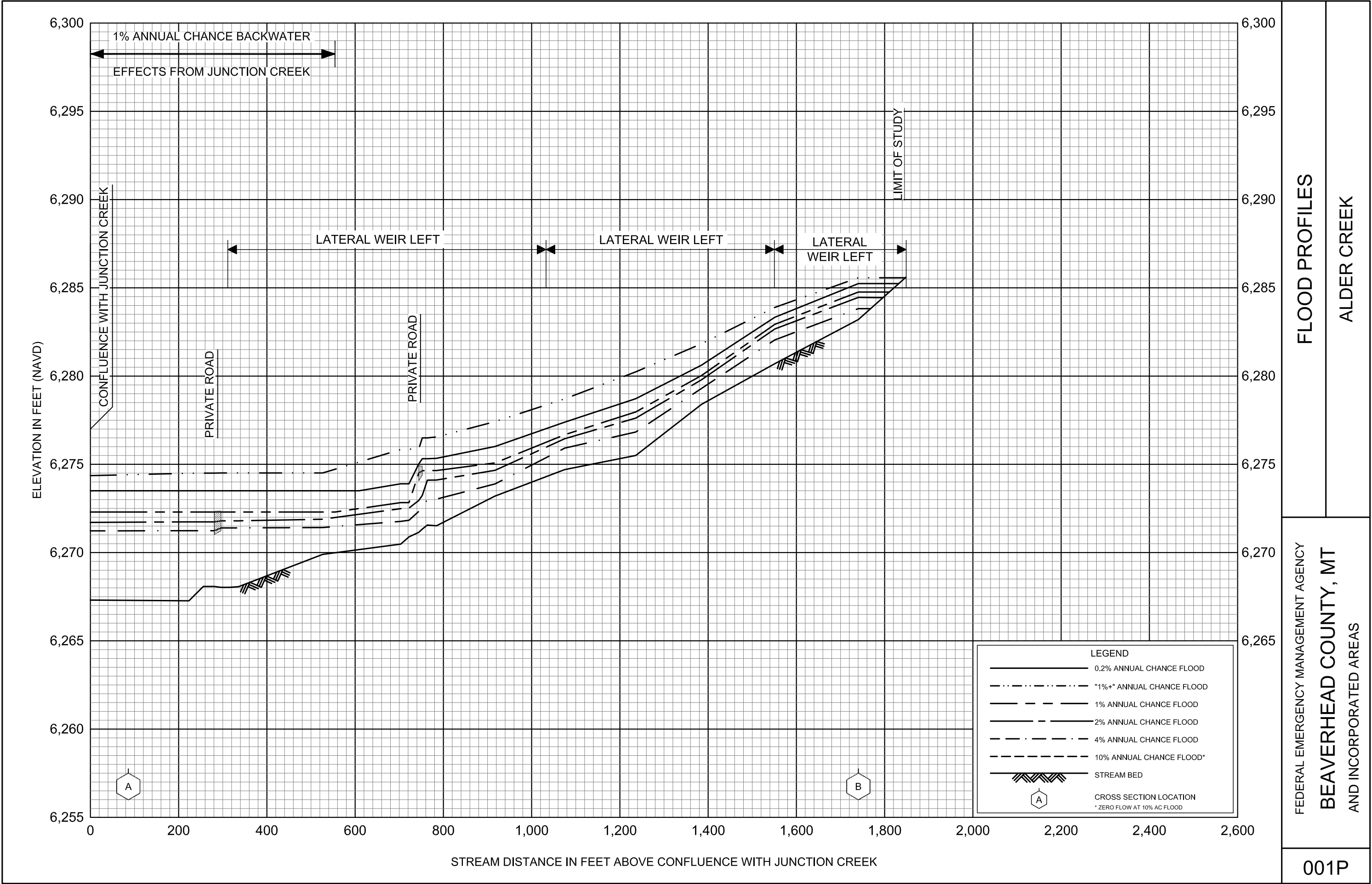
Volume 4

Exhibits

Flood Profiles	<u>Panel</u>	
Murray Gilbert Slough	186	P
Owen Ditch	187-189	P
Poindexter Slough	190-199	P
Poindexter Slough Overflow	200-204	P
Selway Slough	205-214	P
Selway Split	215	P
Stodden Slough	216-231	P
Upper Split	232-240	P

Published Separately

Flood Insurance Rate Map (FIRM)

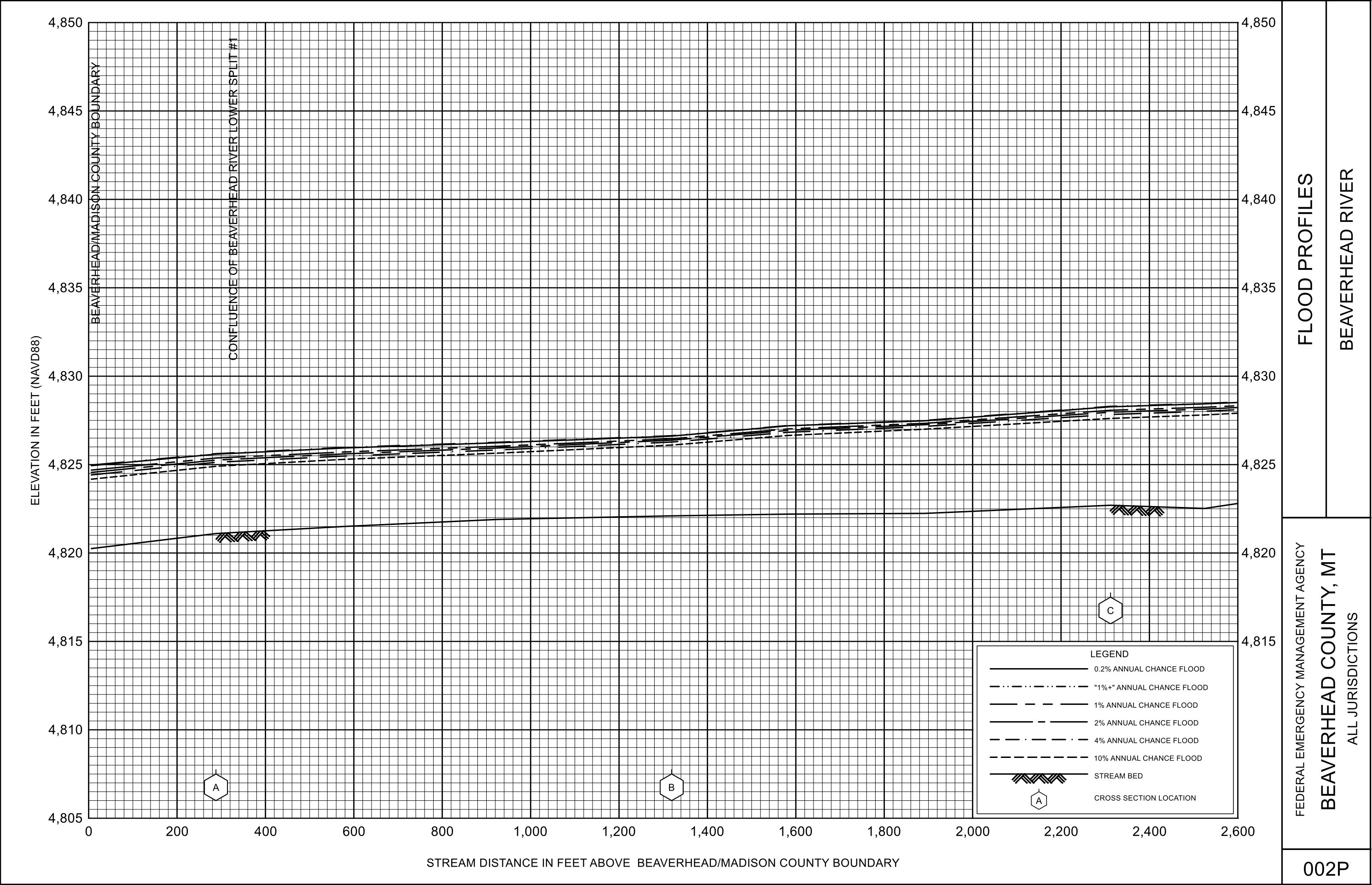


FLOOD PROFILES

ALDER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT
AND INCORPORATED AREAS



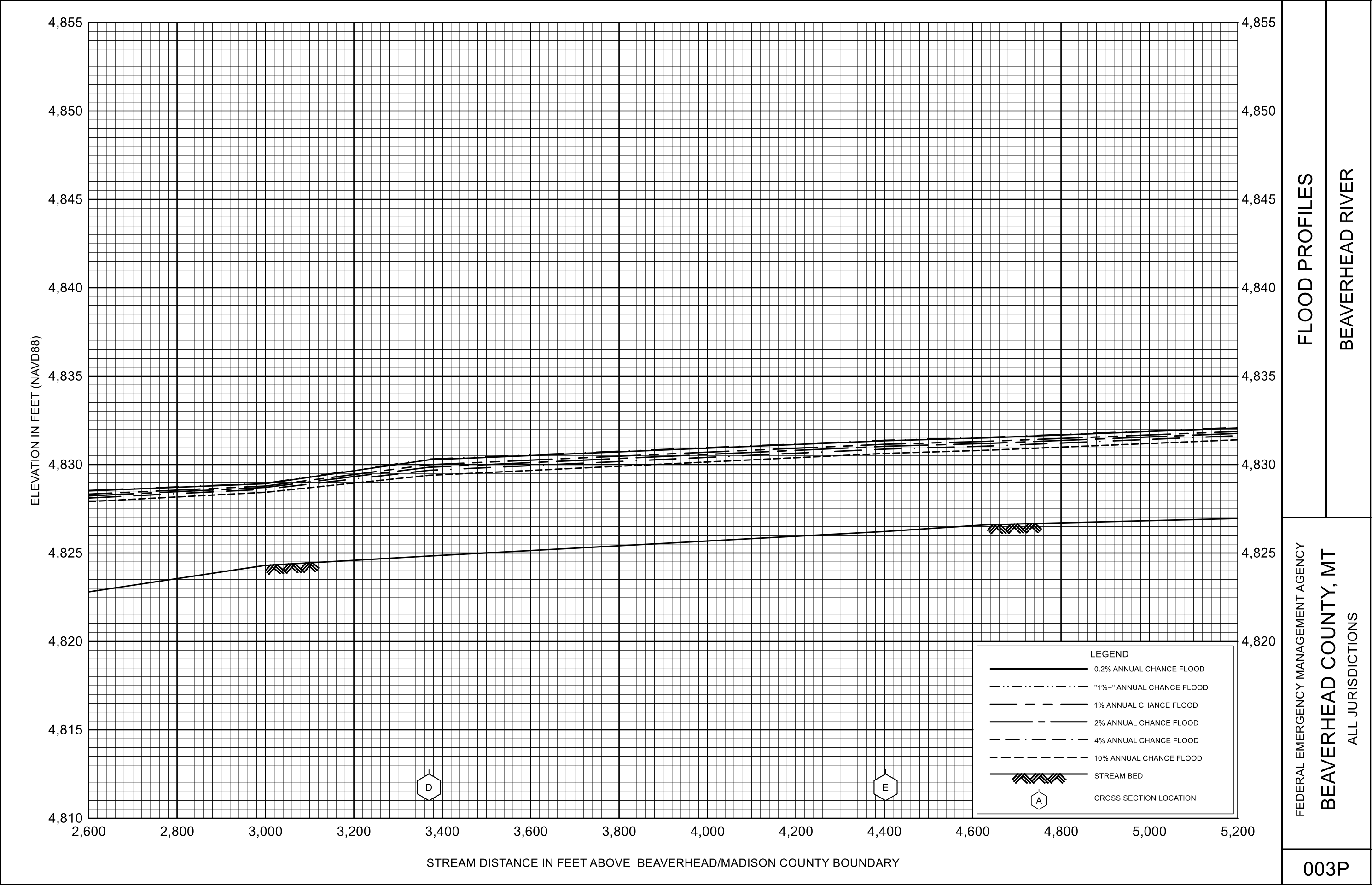
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



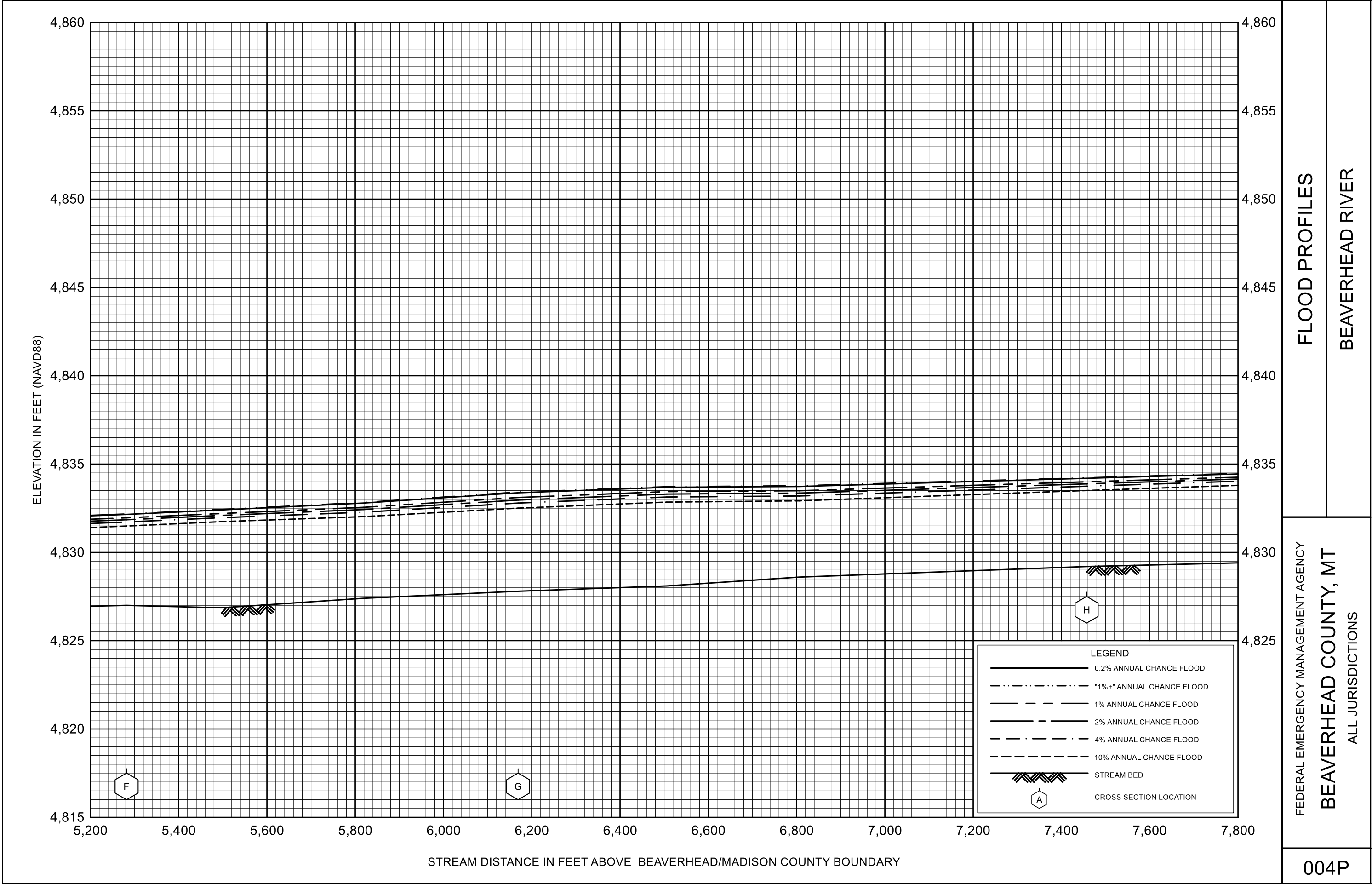
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



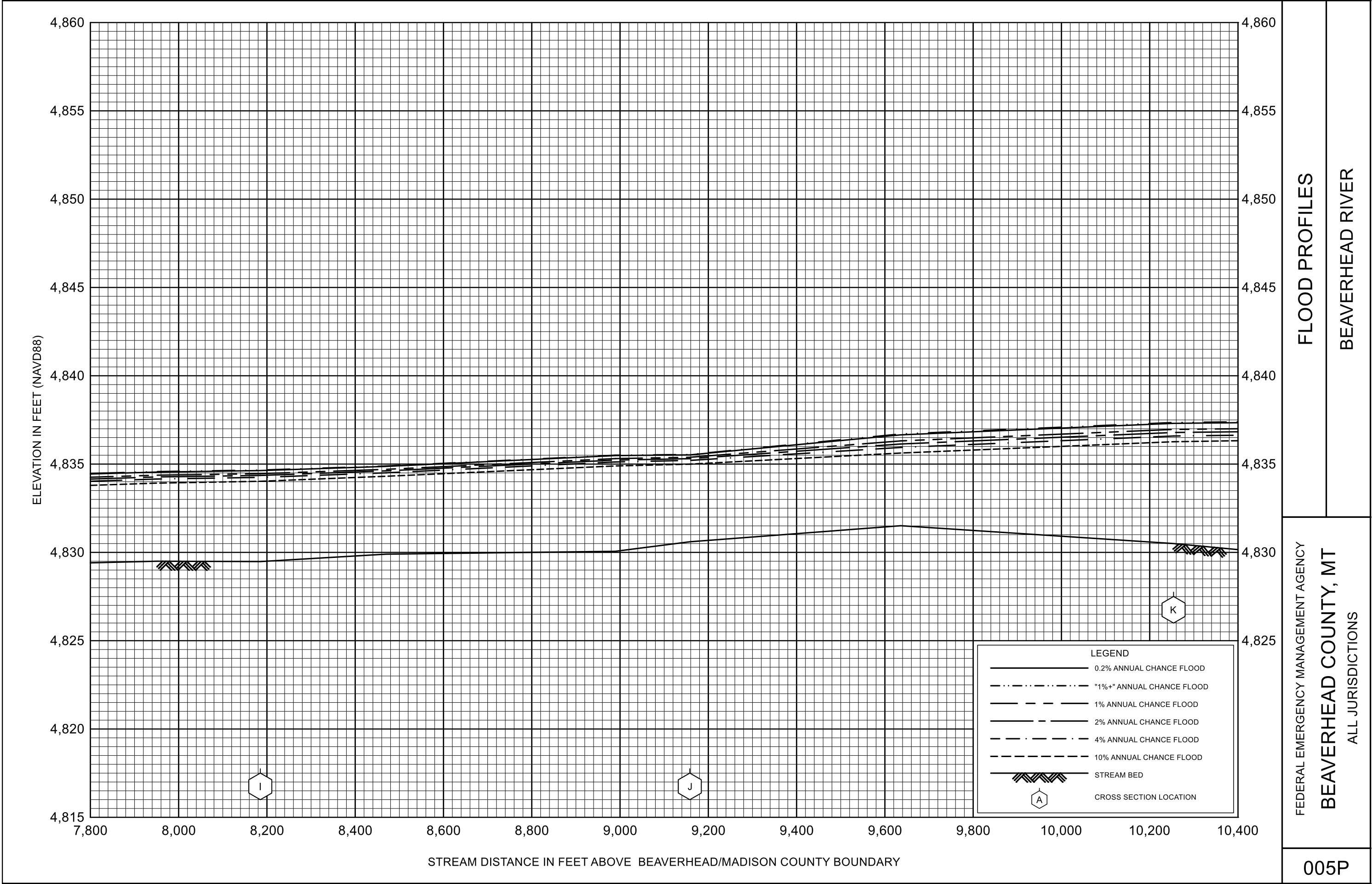
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

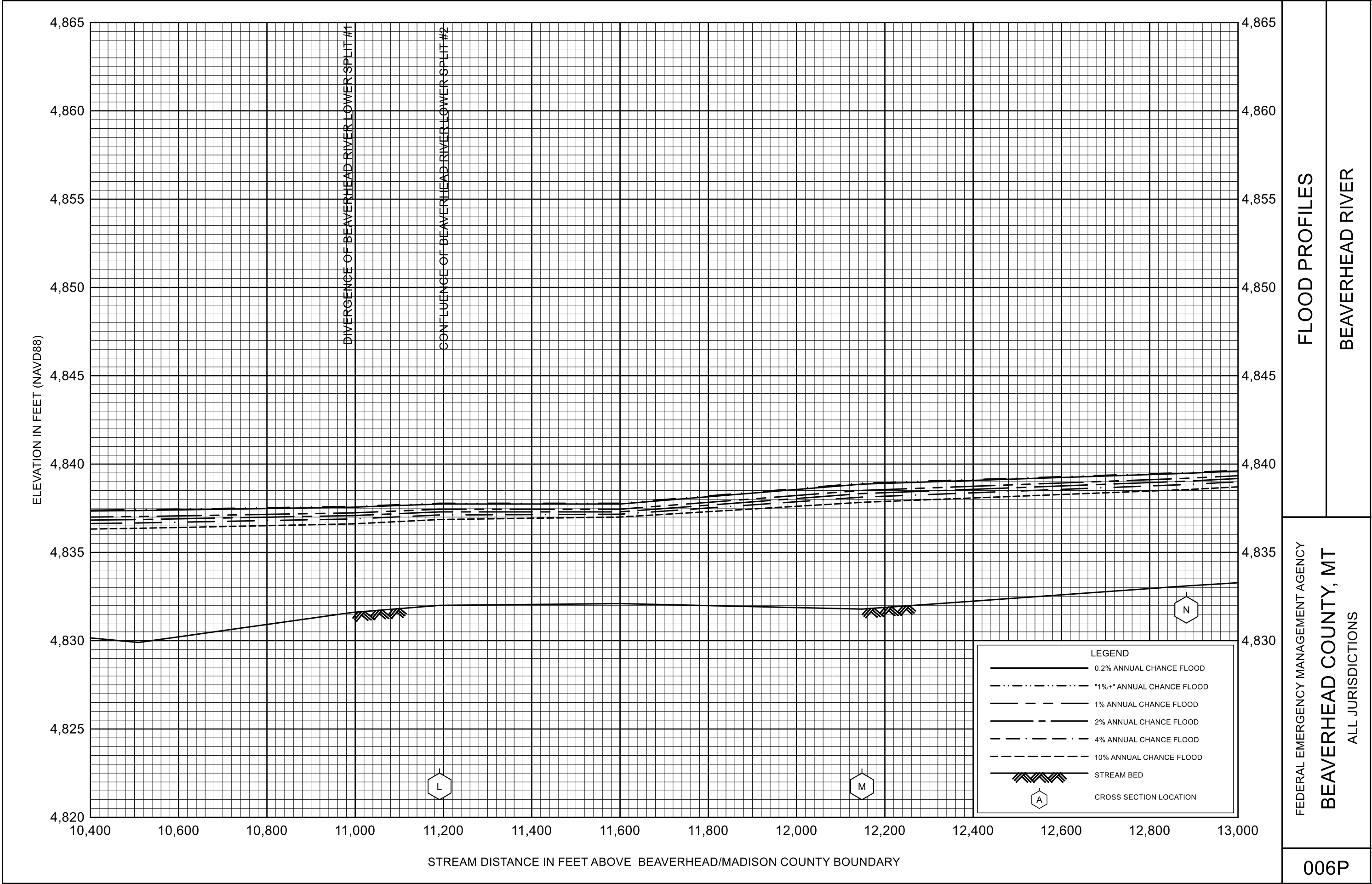
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



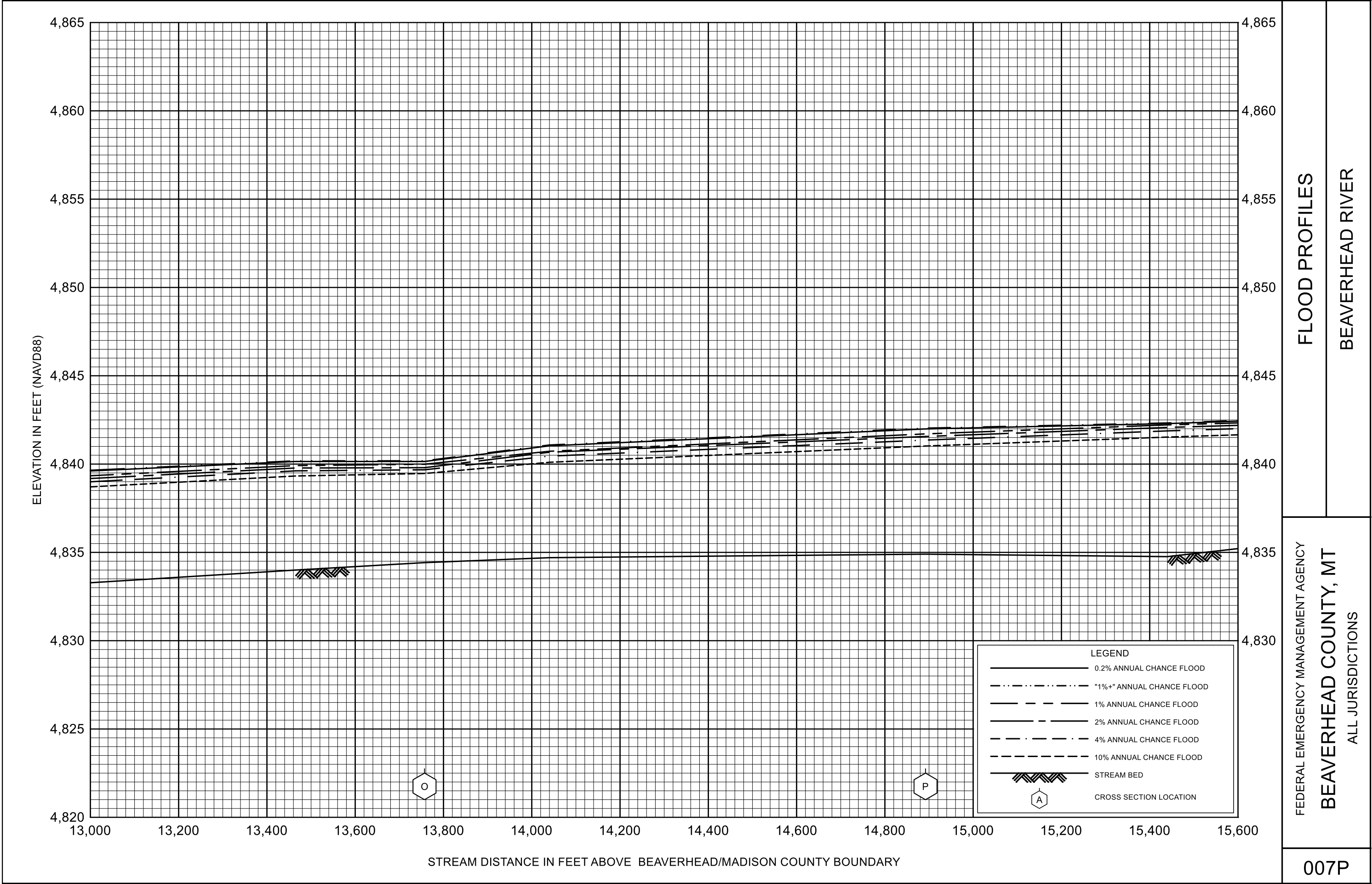
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



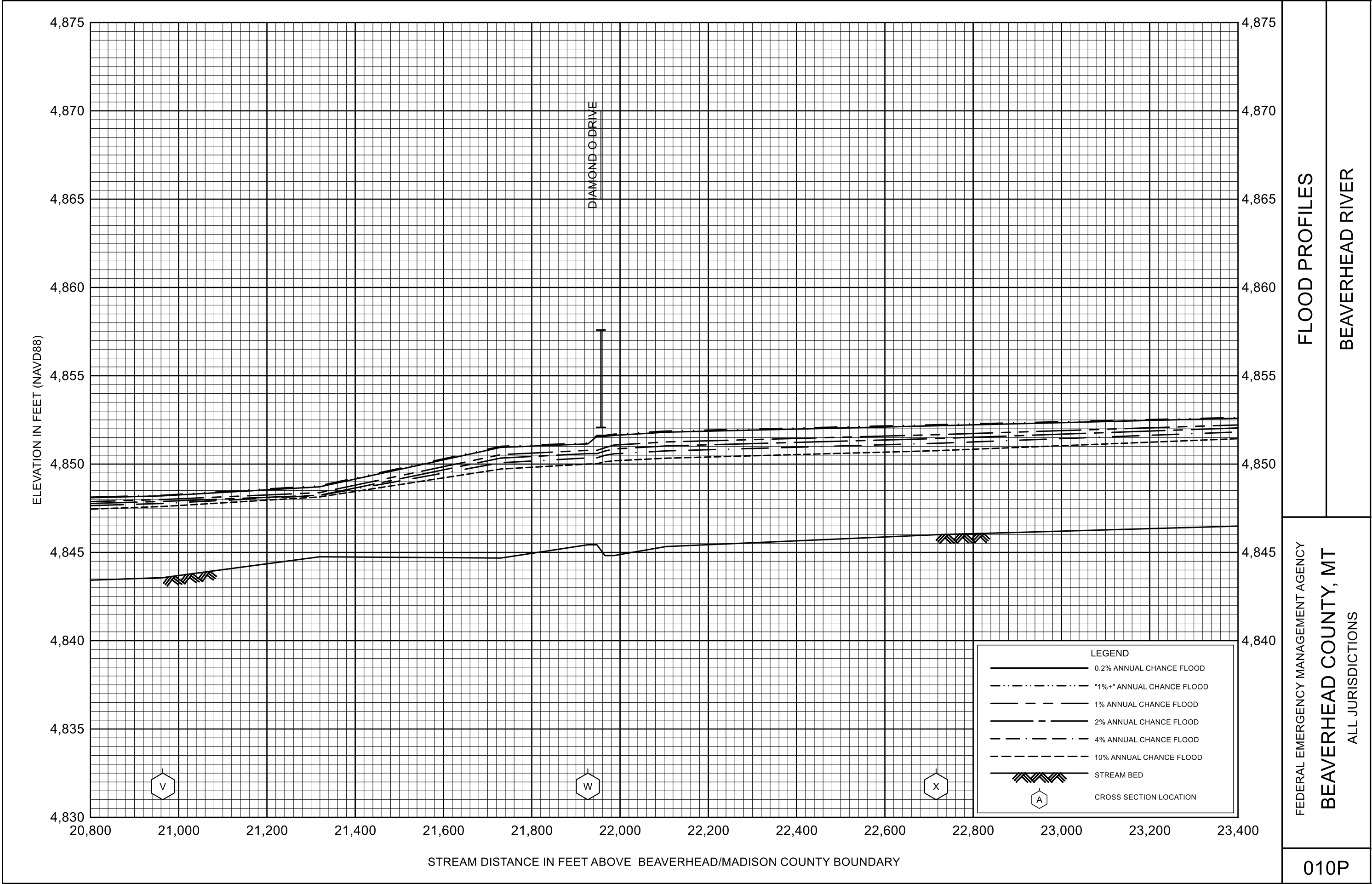
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



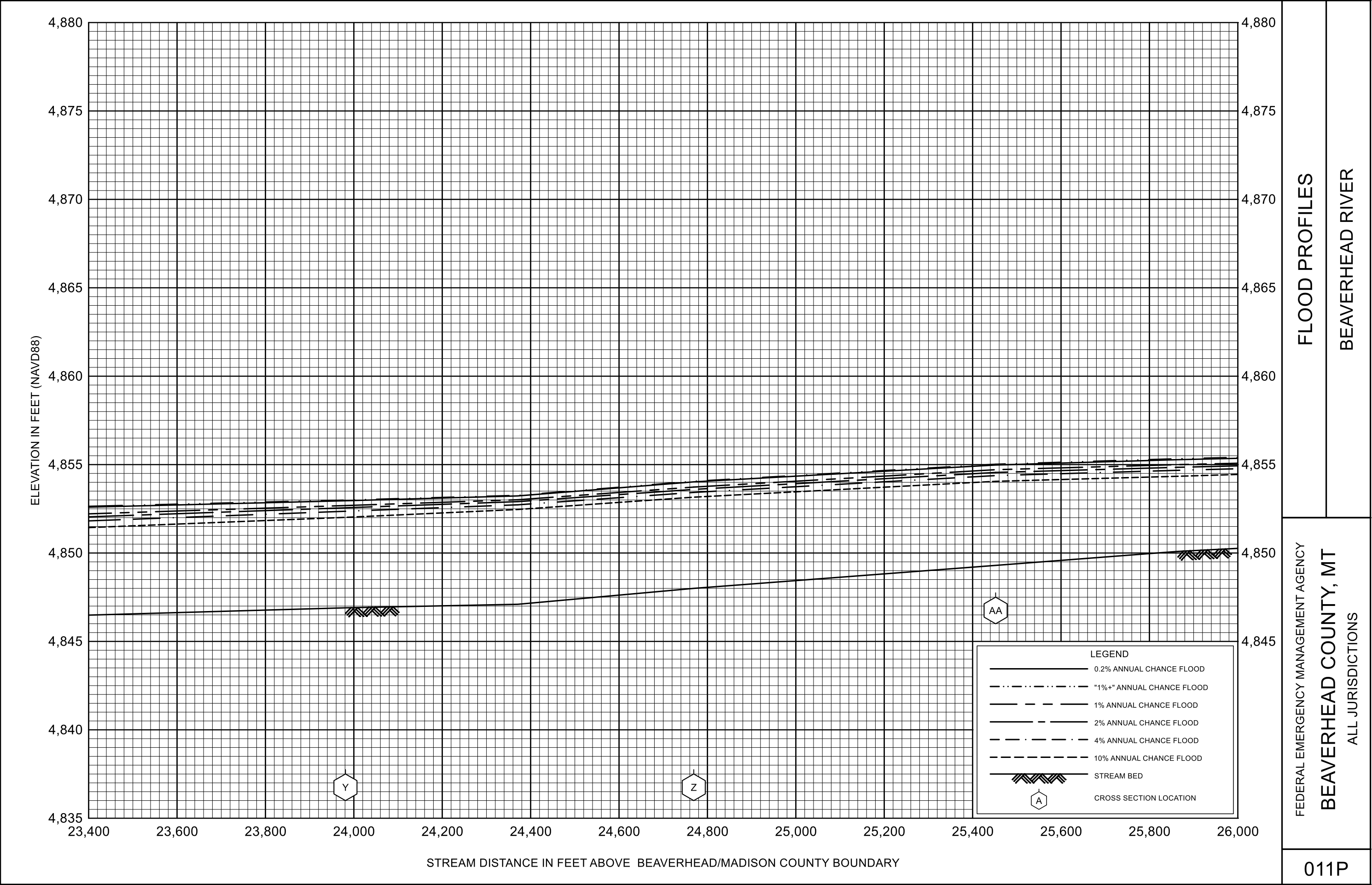
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



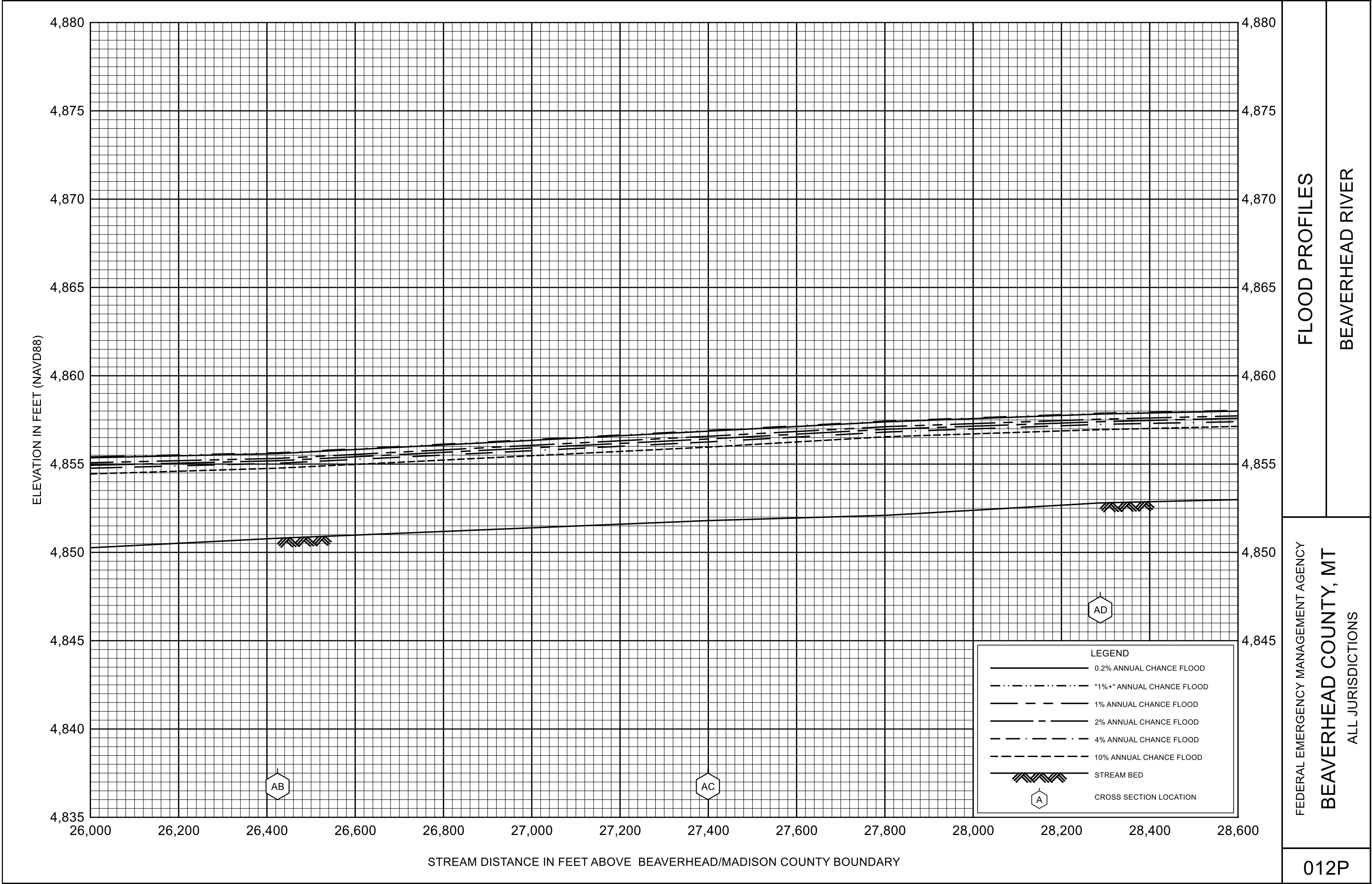
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



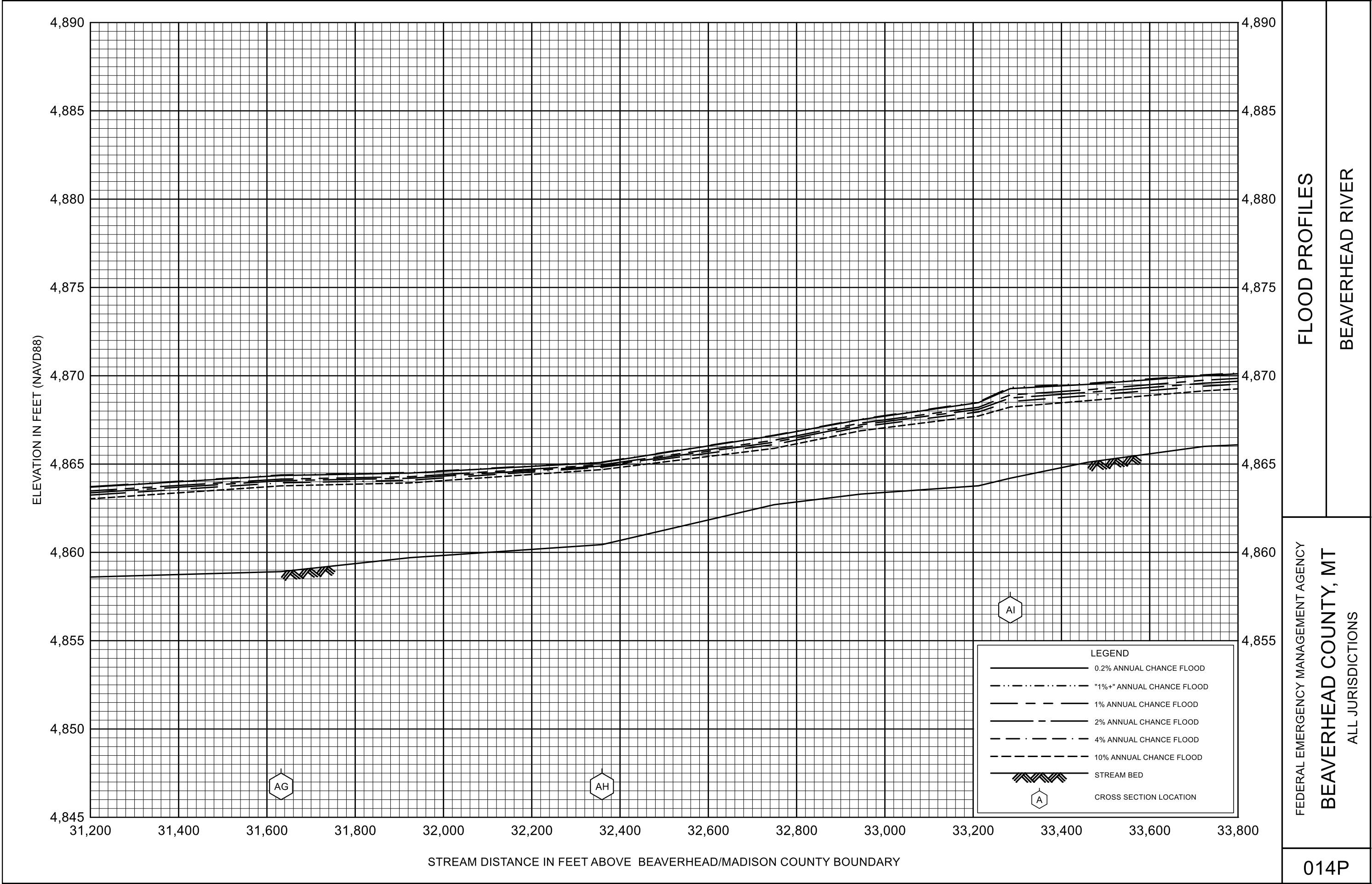
FLOOD PROFILES

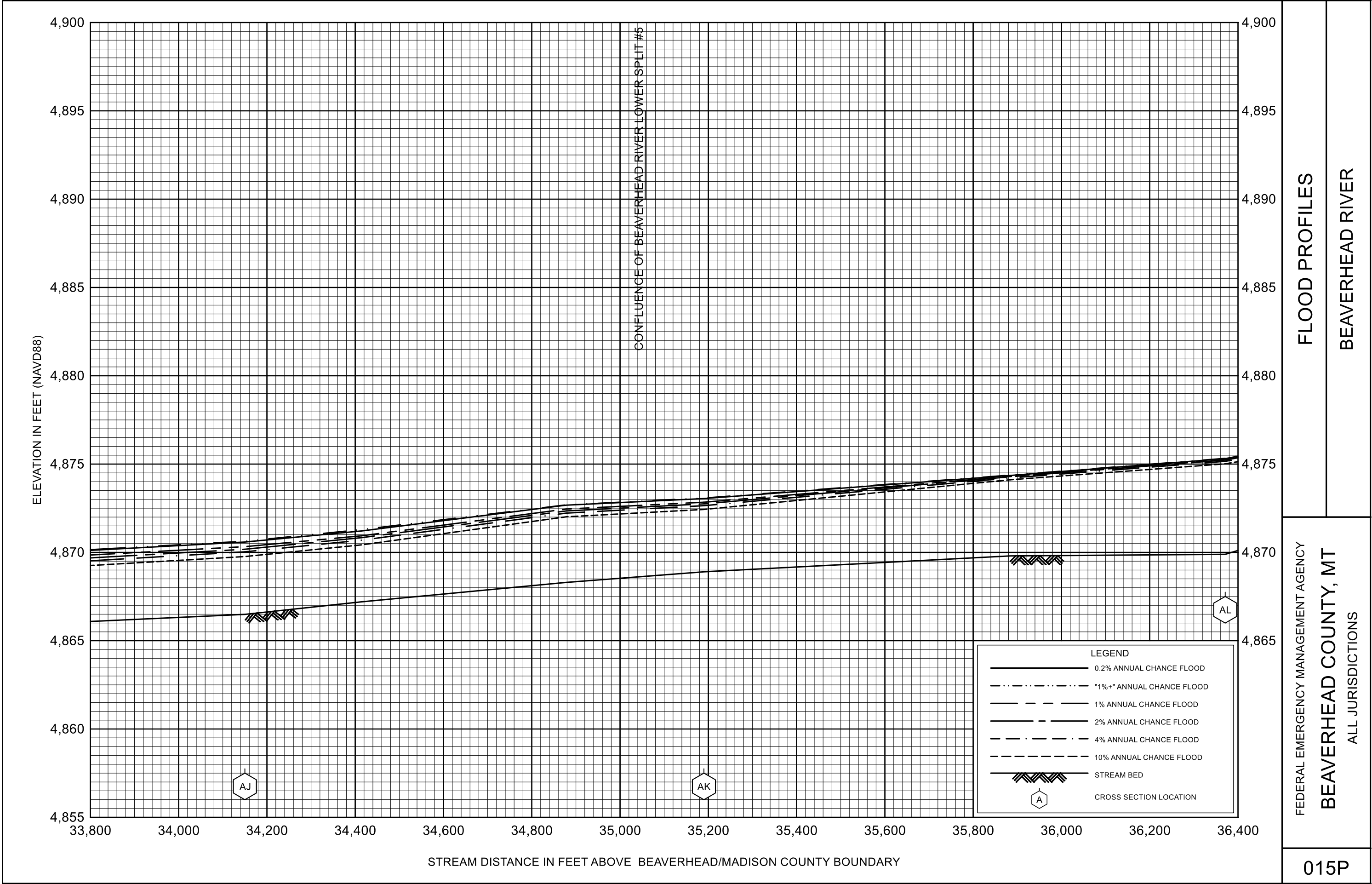
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





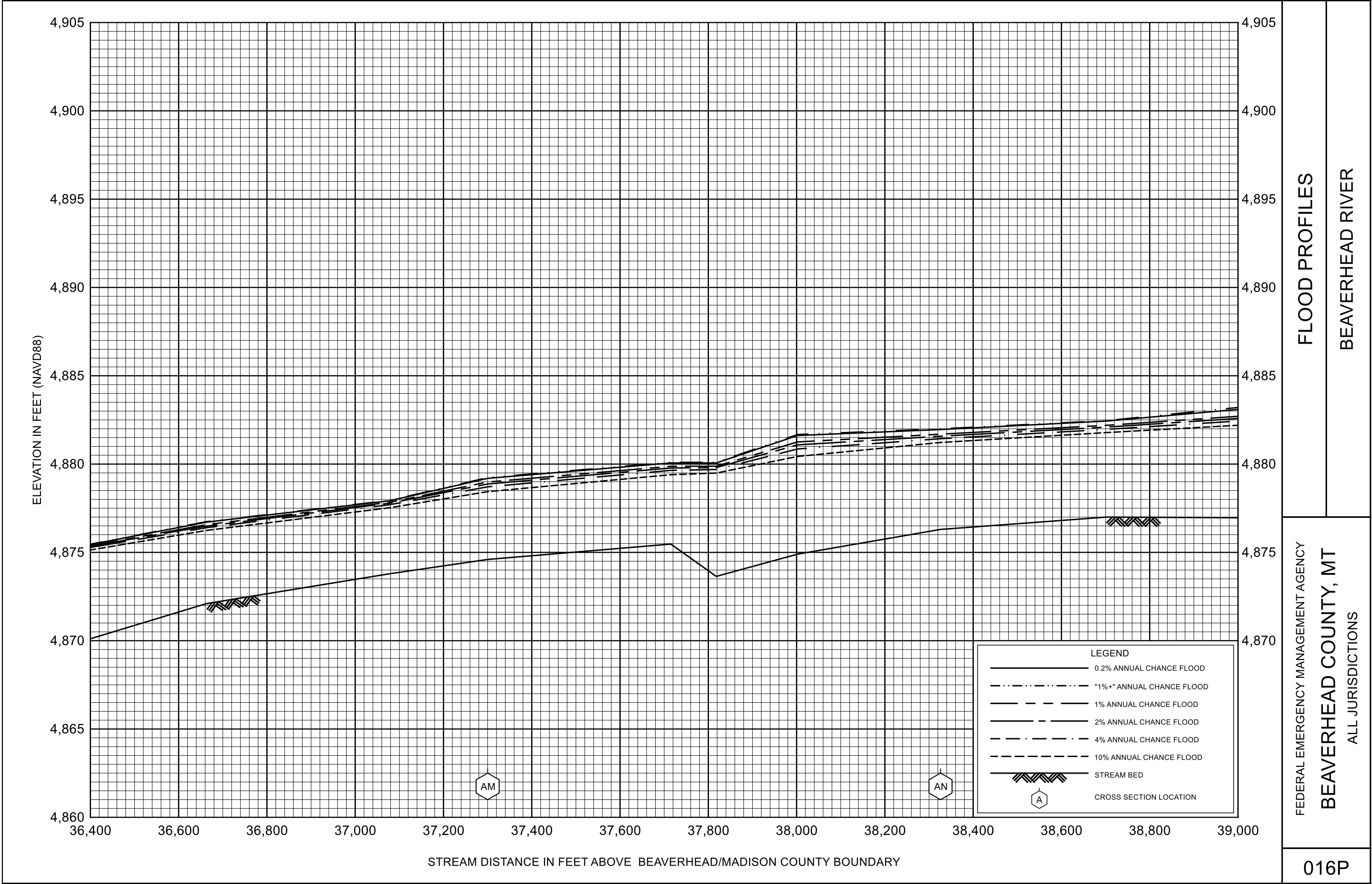
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



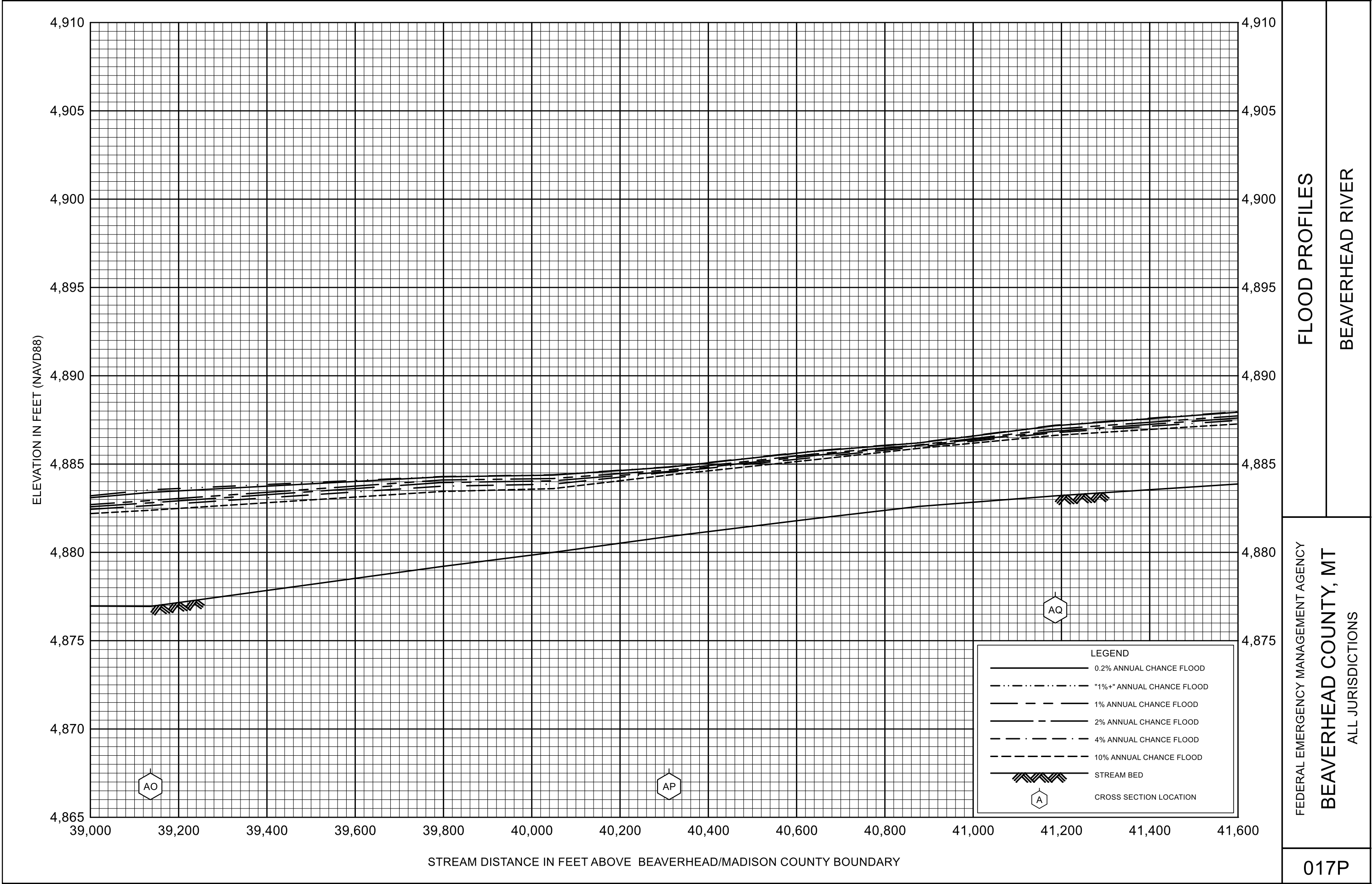
FLOOD PROFILES

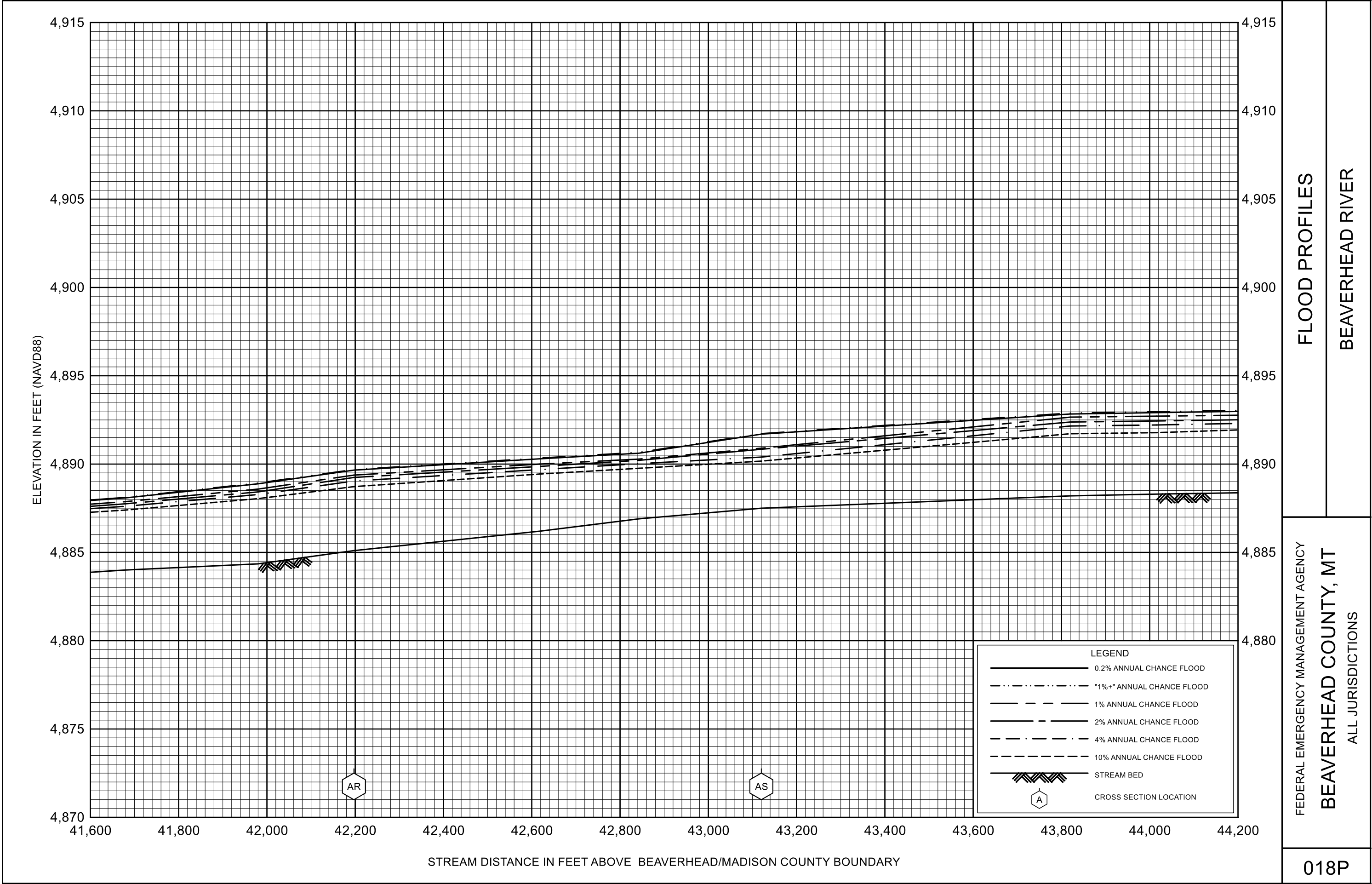
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





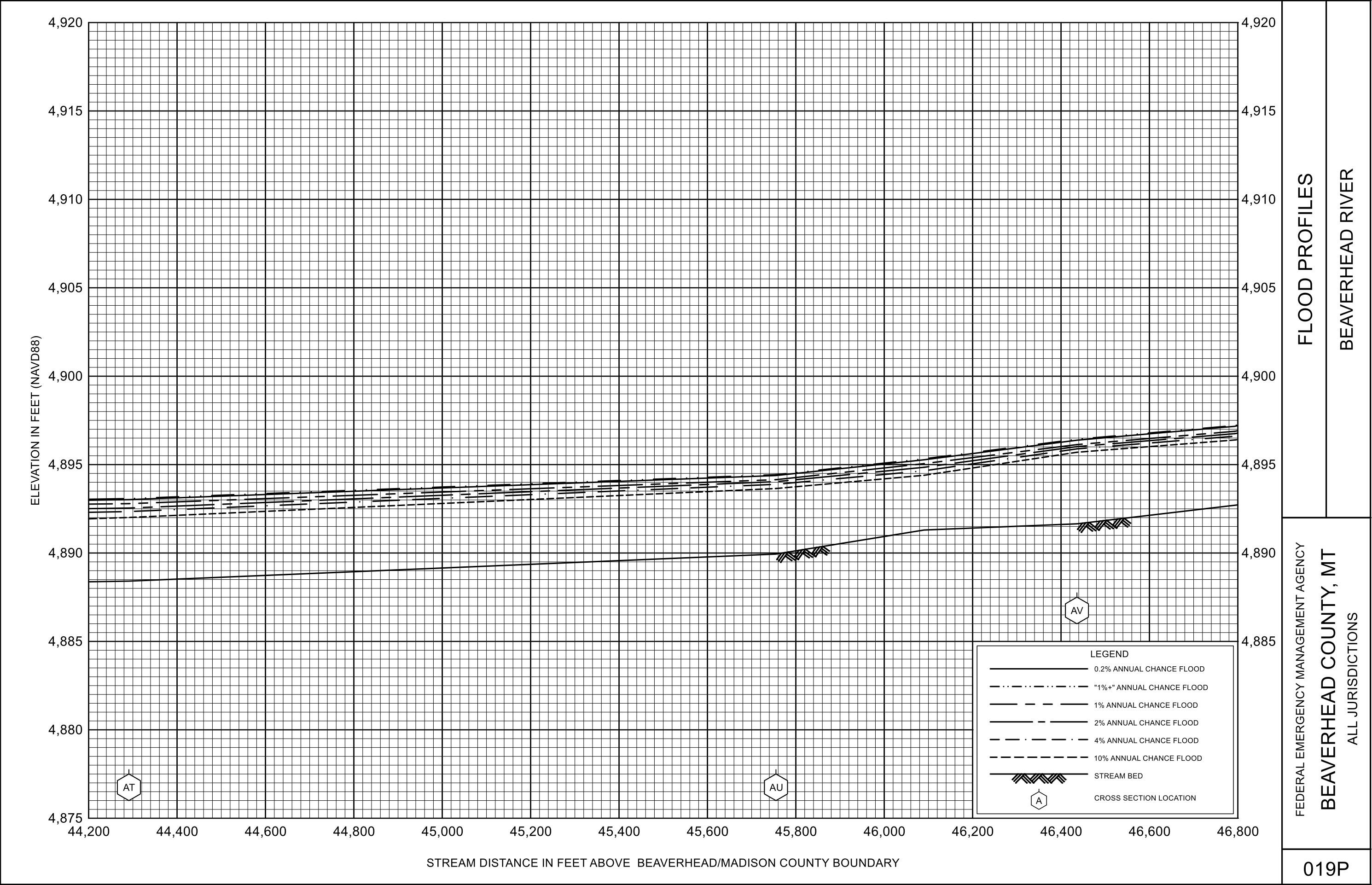
FLOOD PROFILES

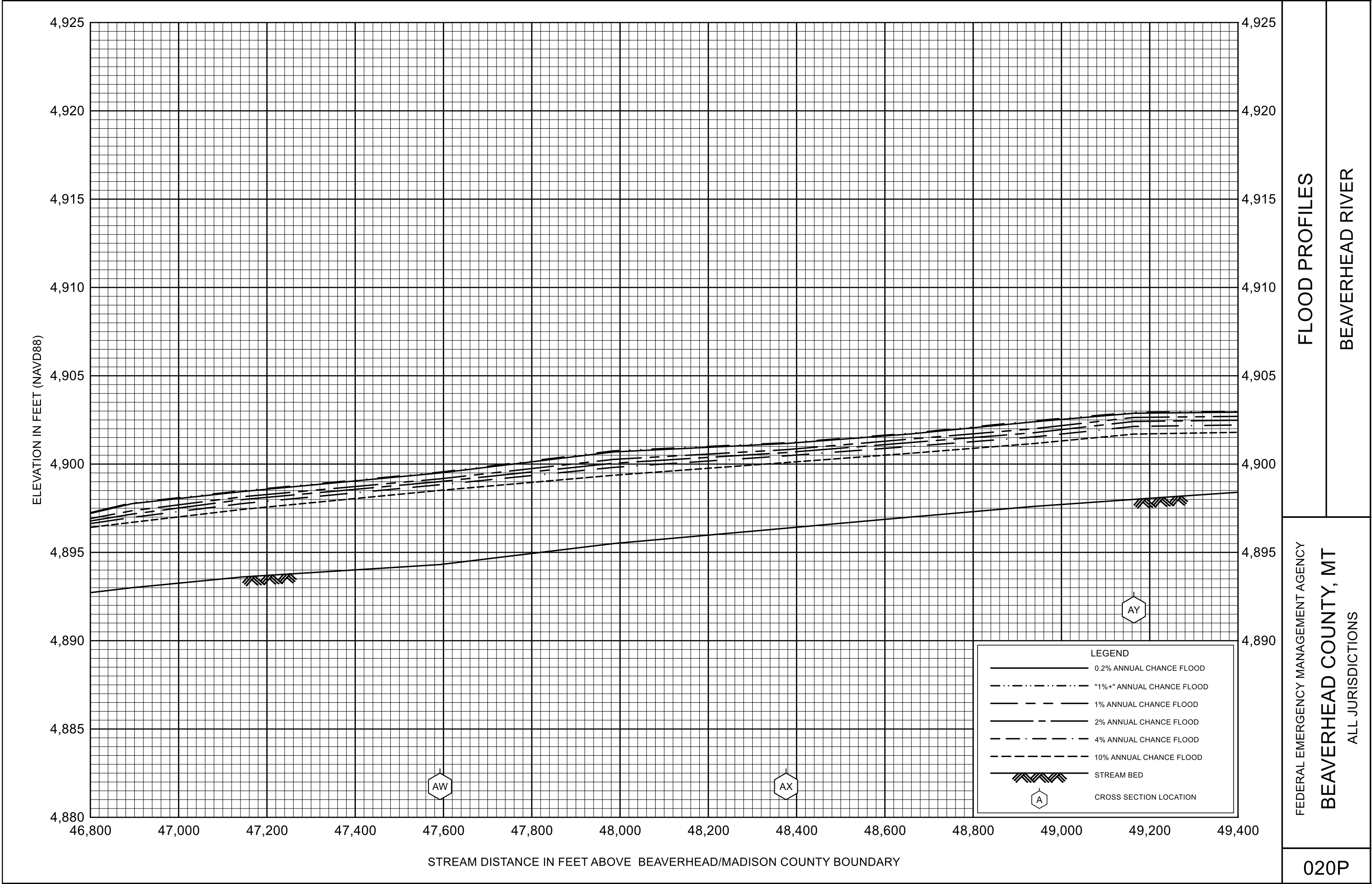
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





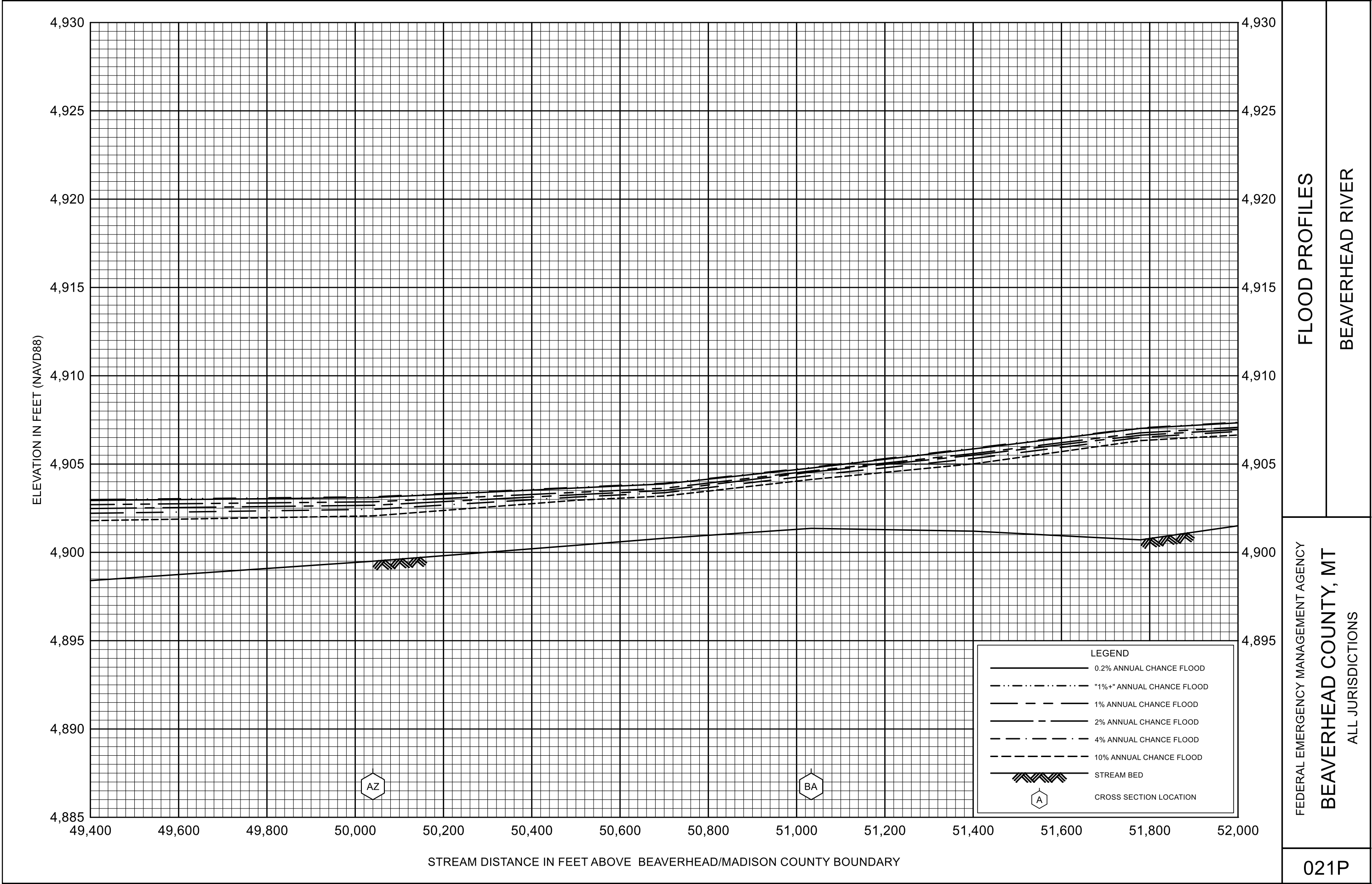
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

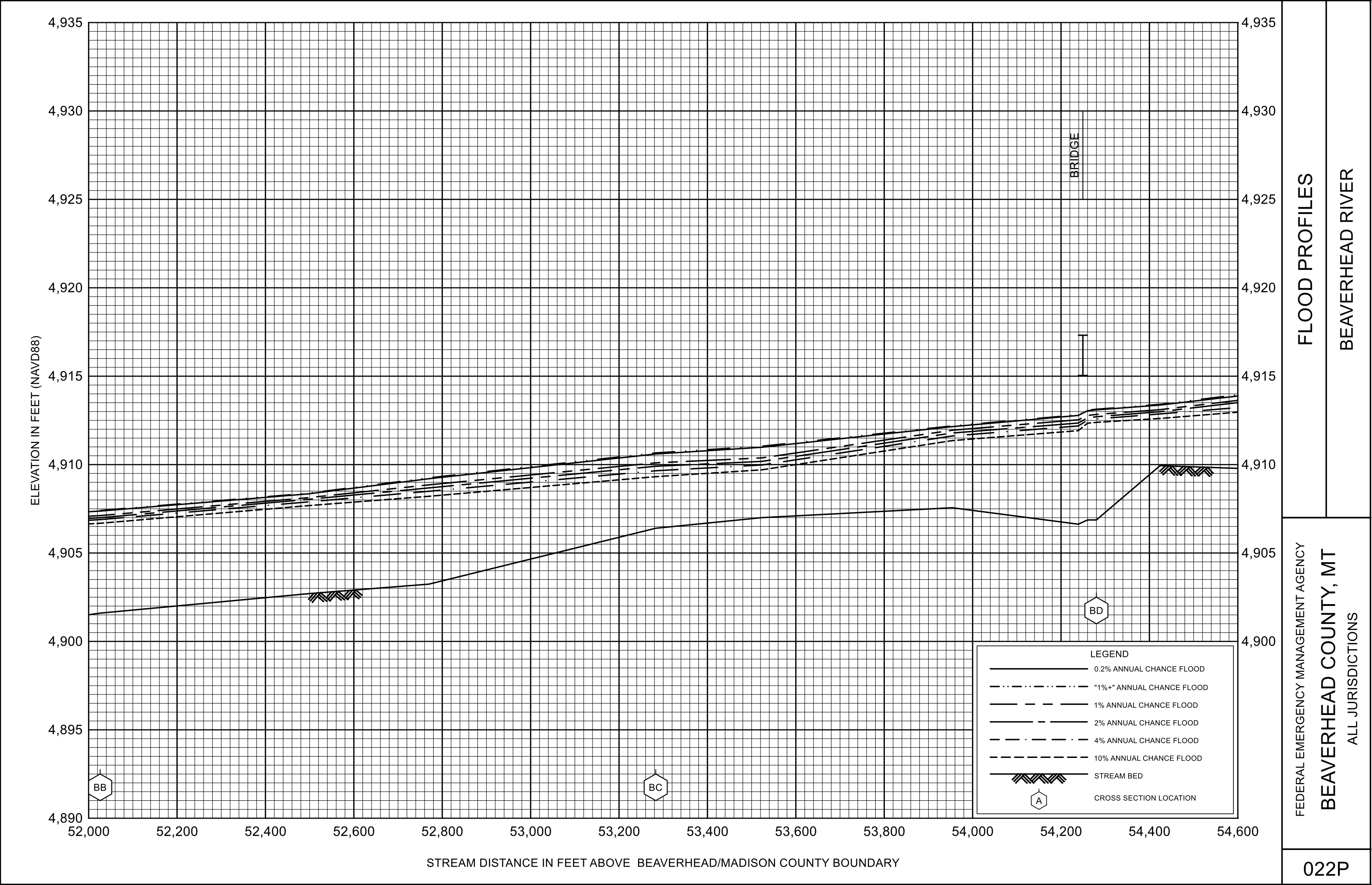
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



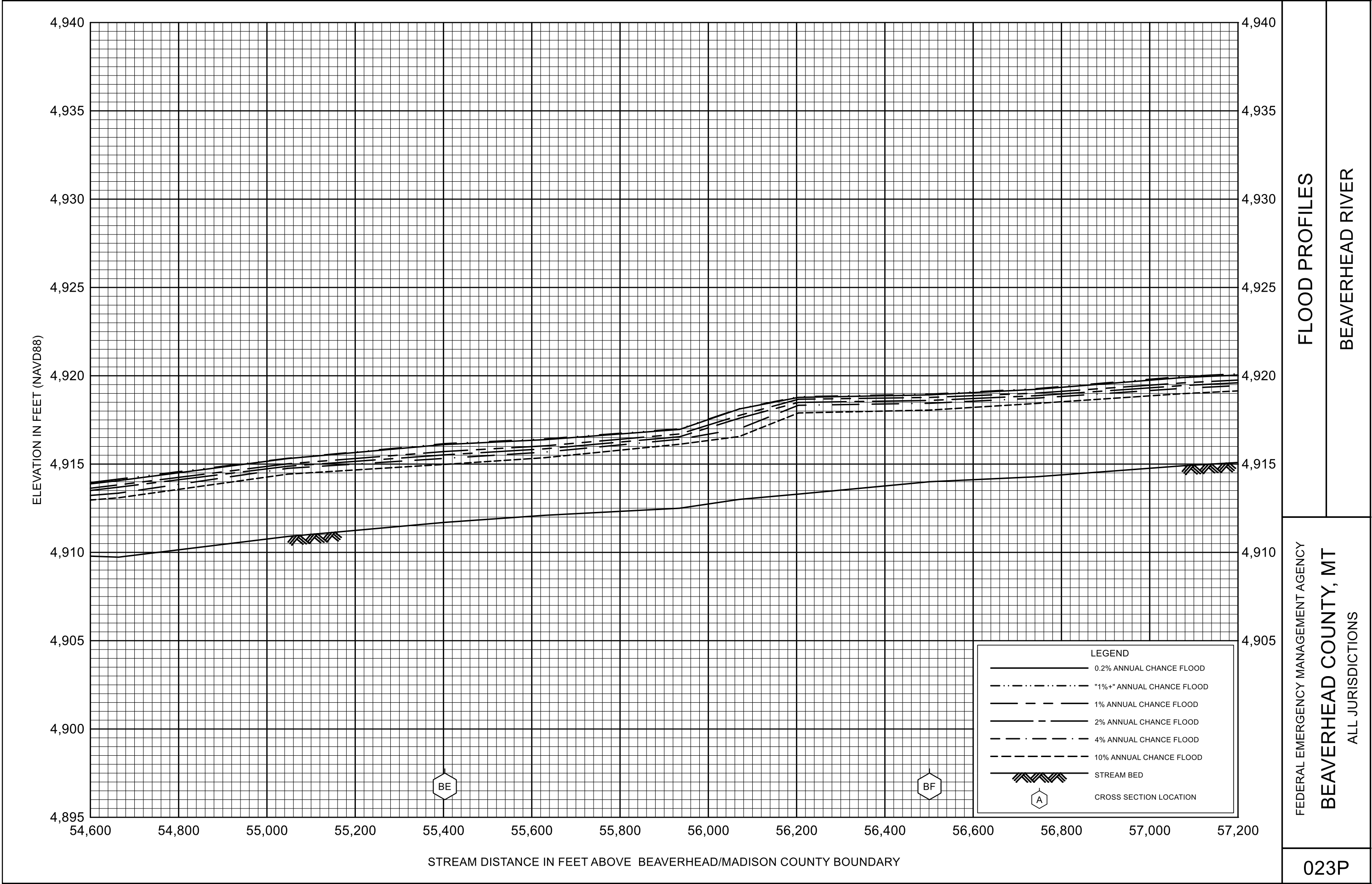
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



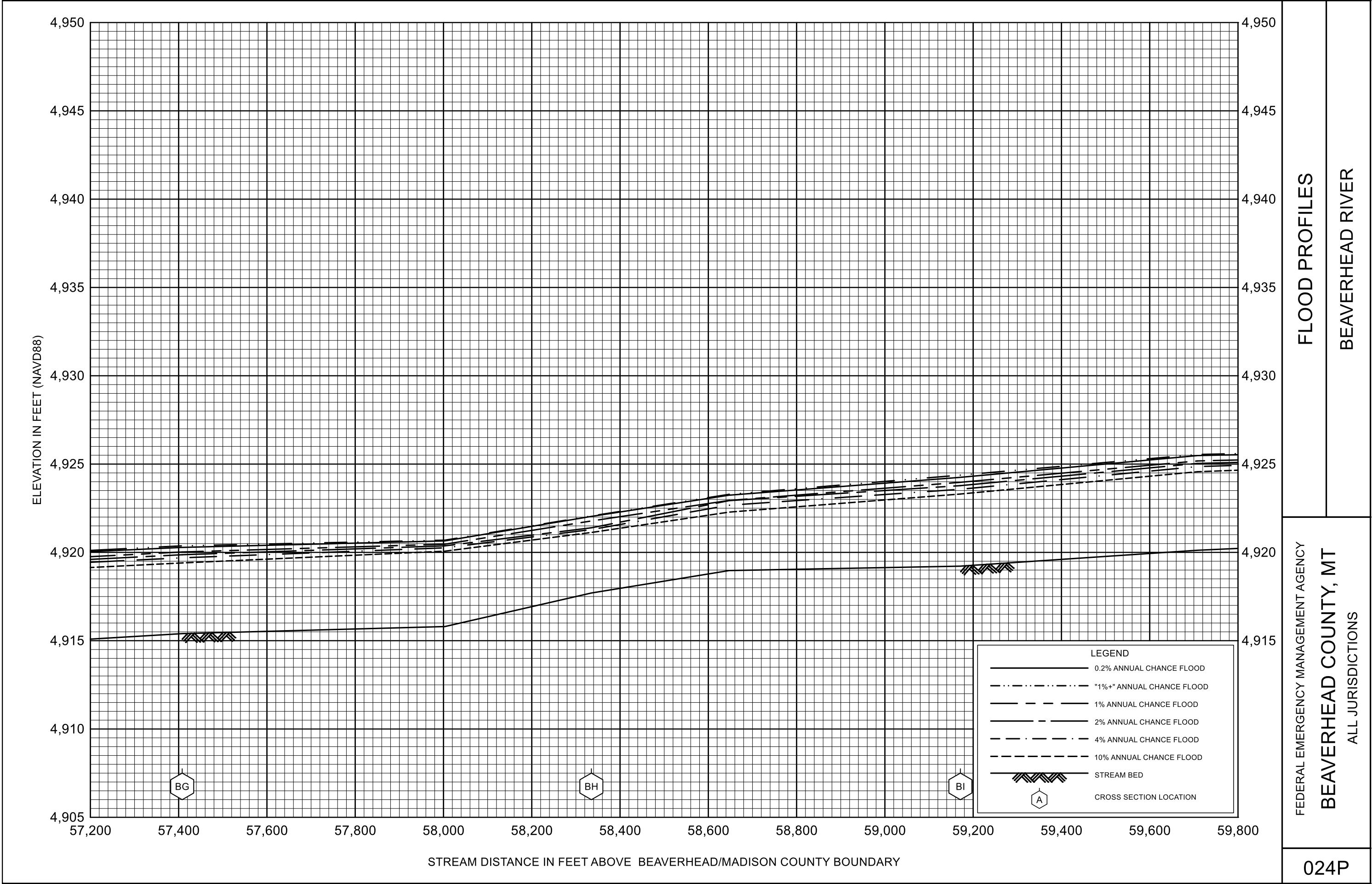
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



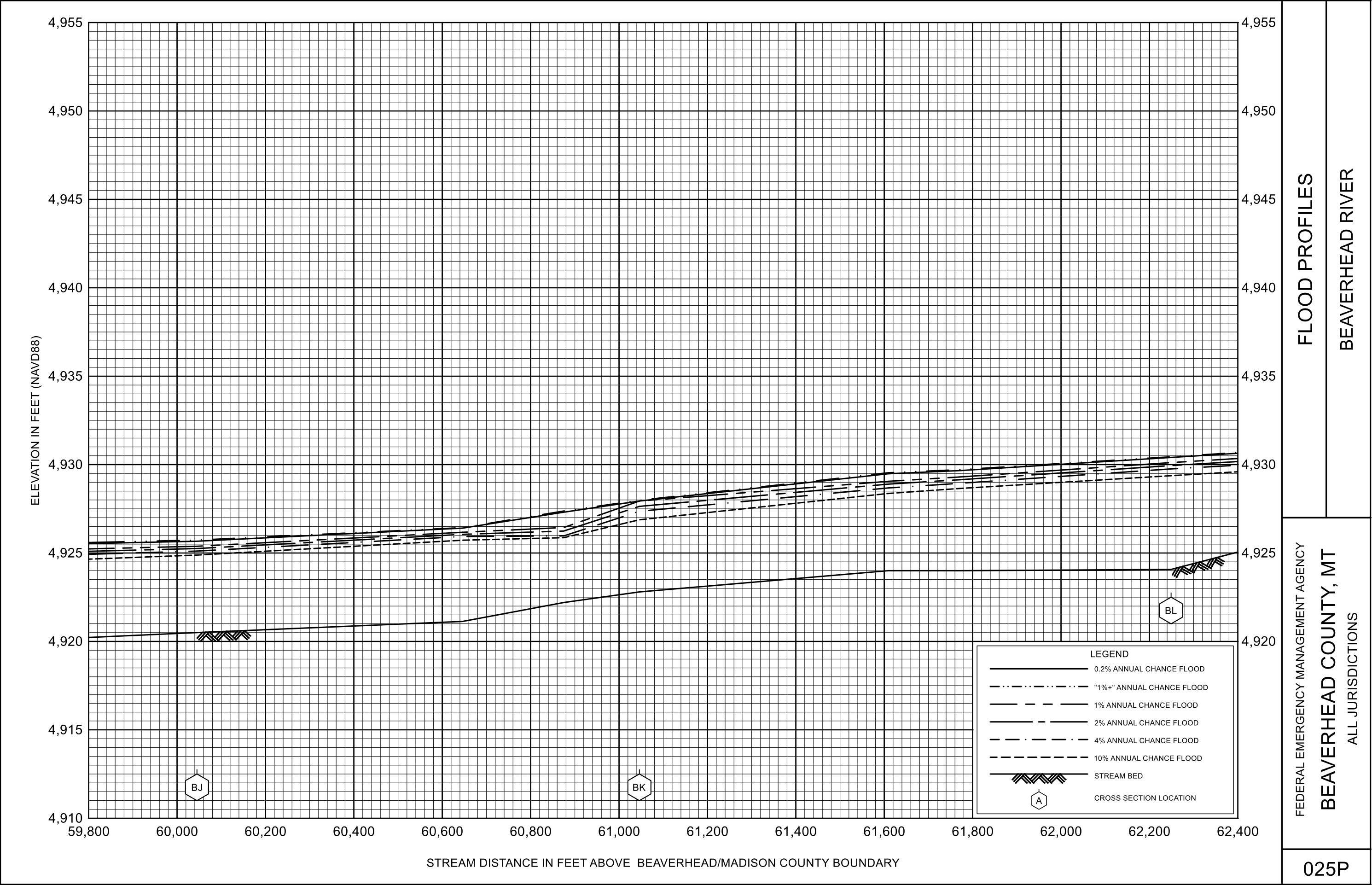
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



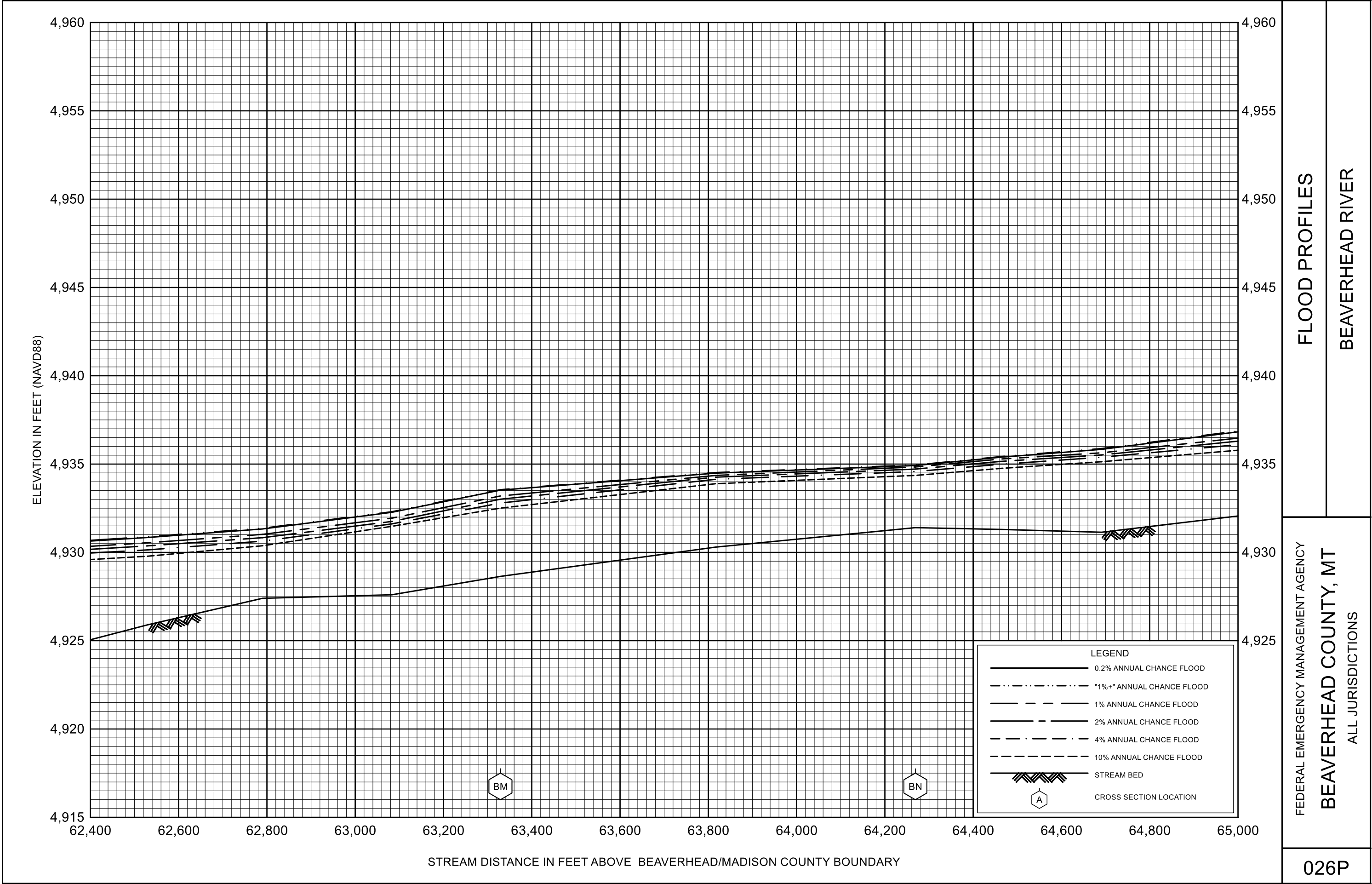
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



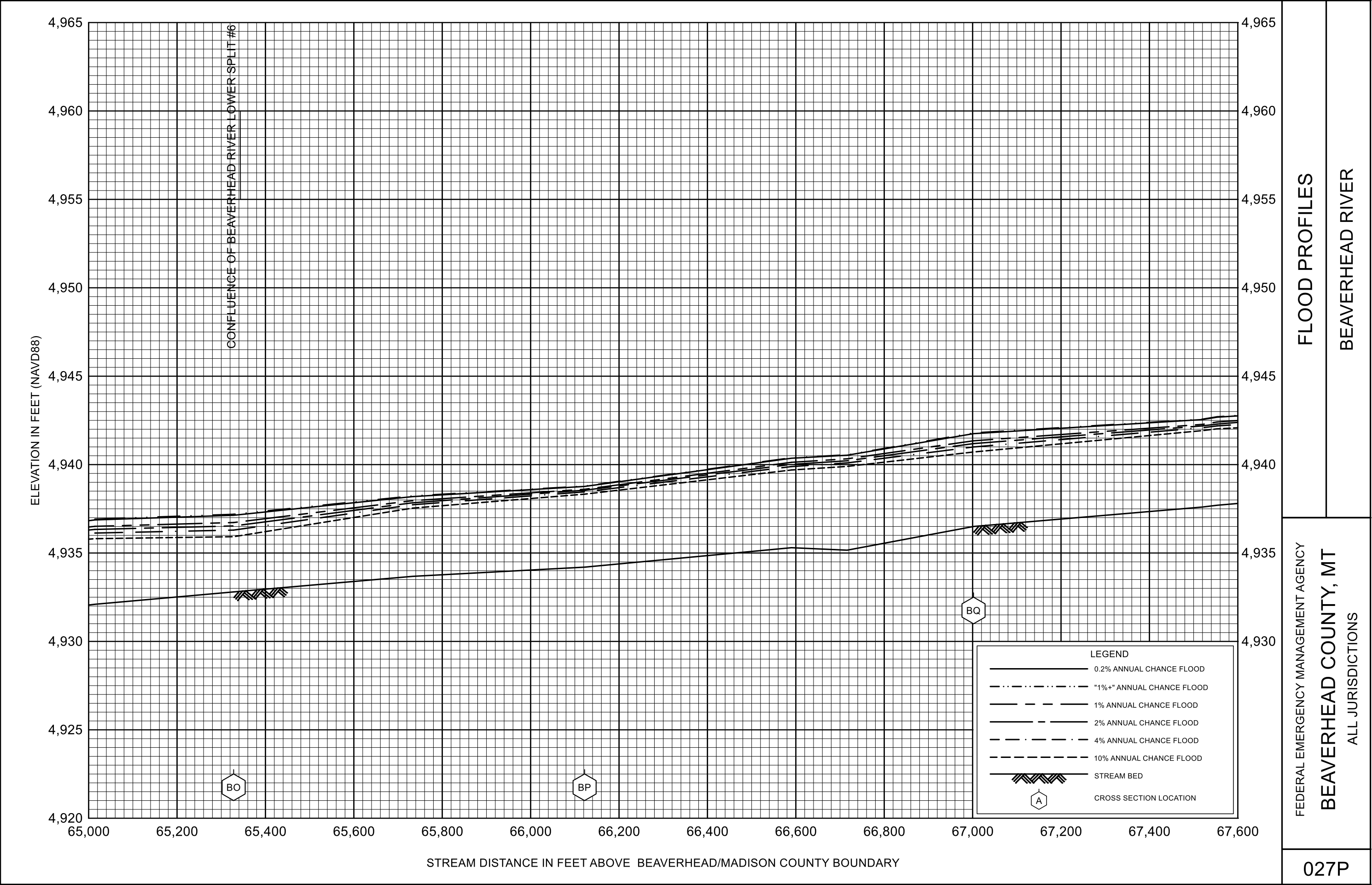
FLOOD PROFILES

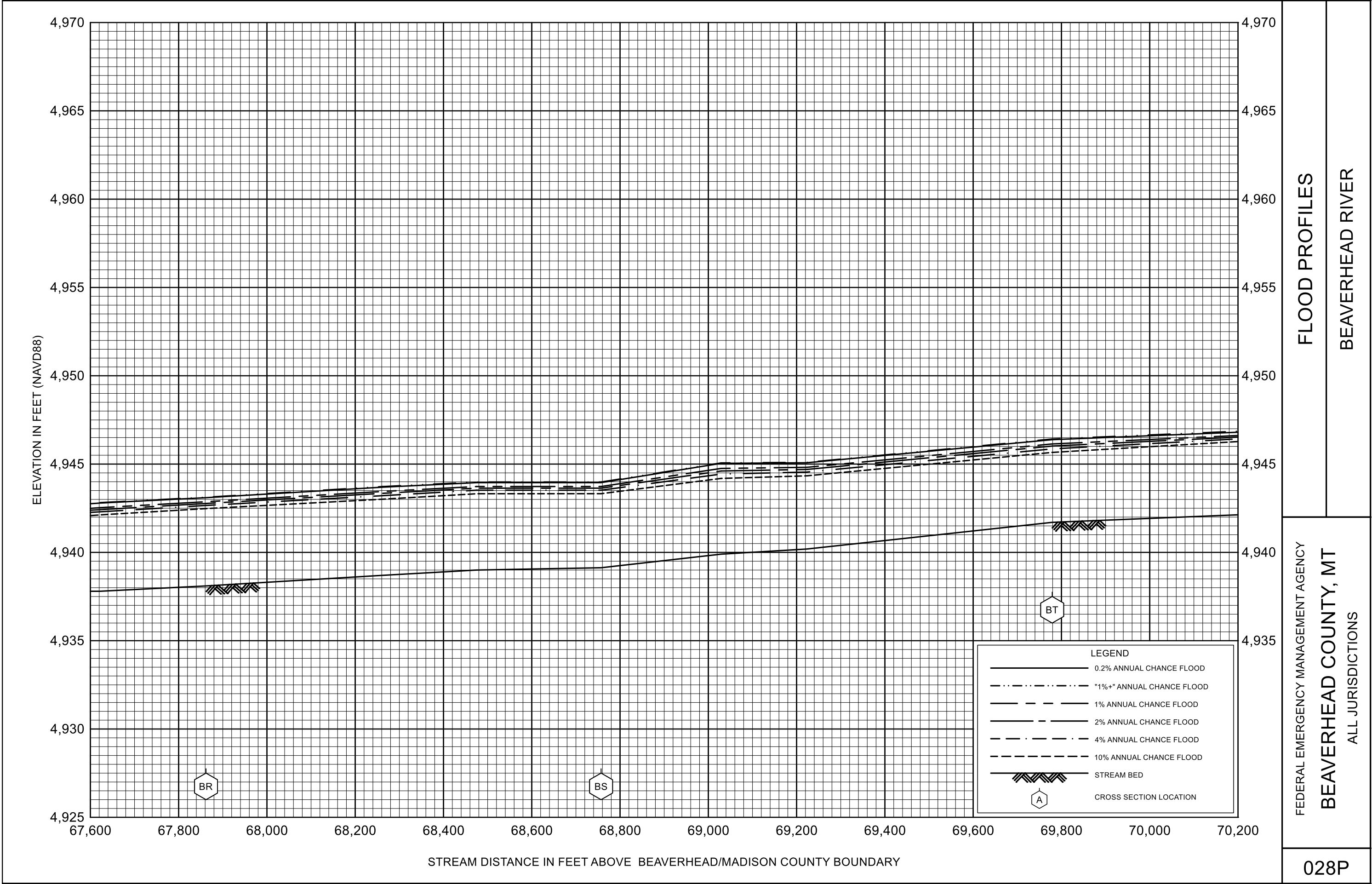
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





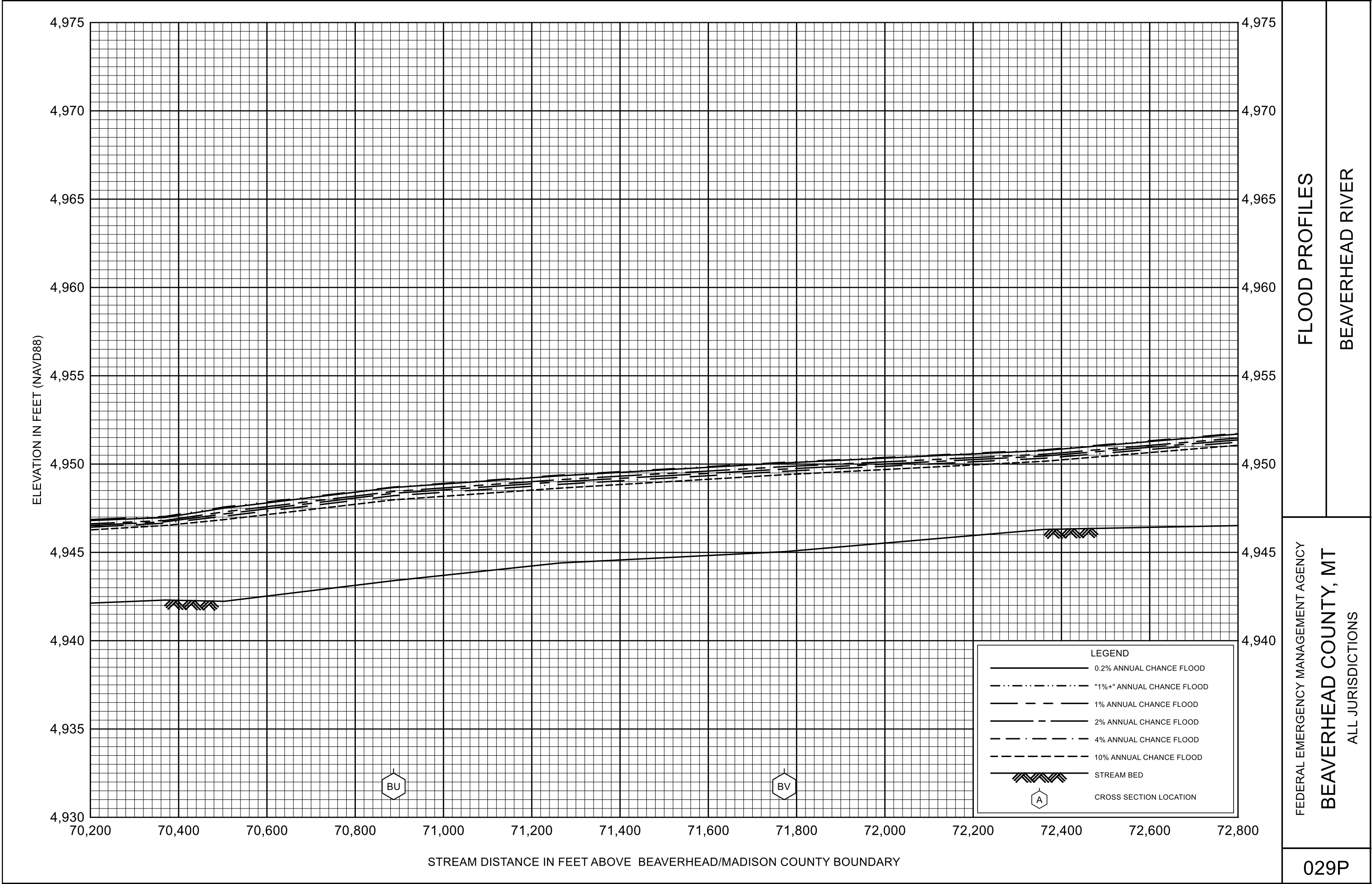
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



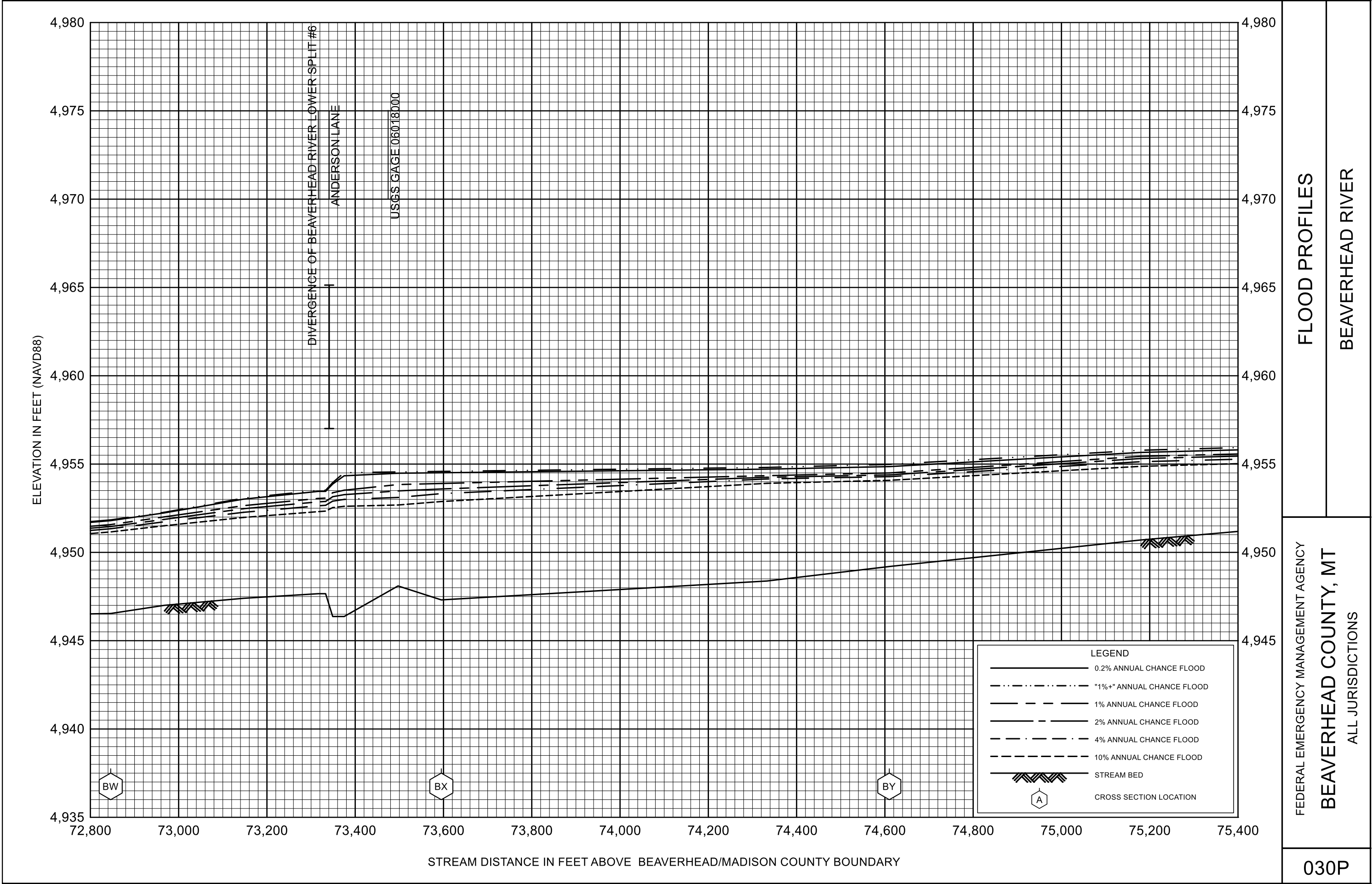
FLOOD PROFILES

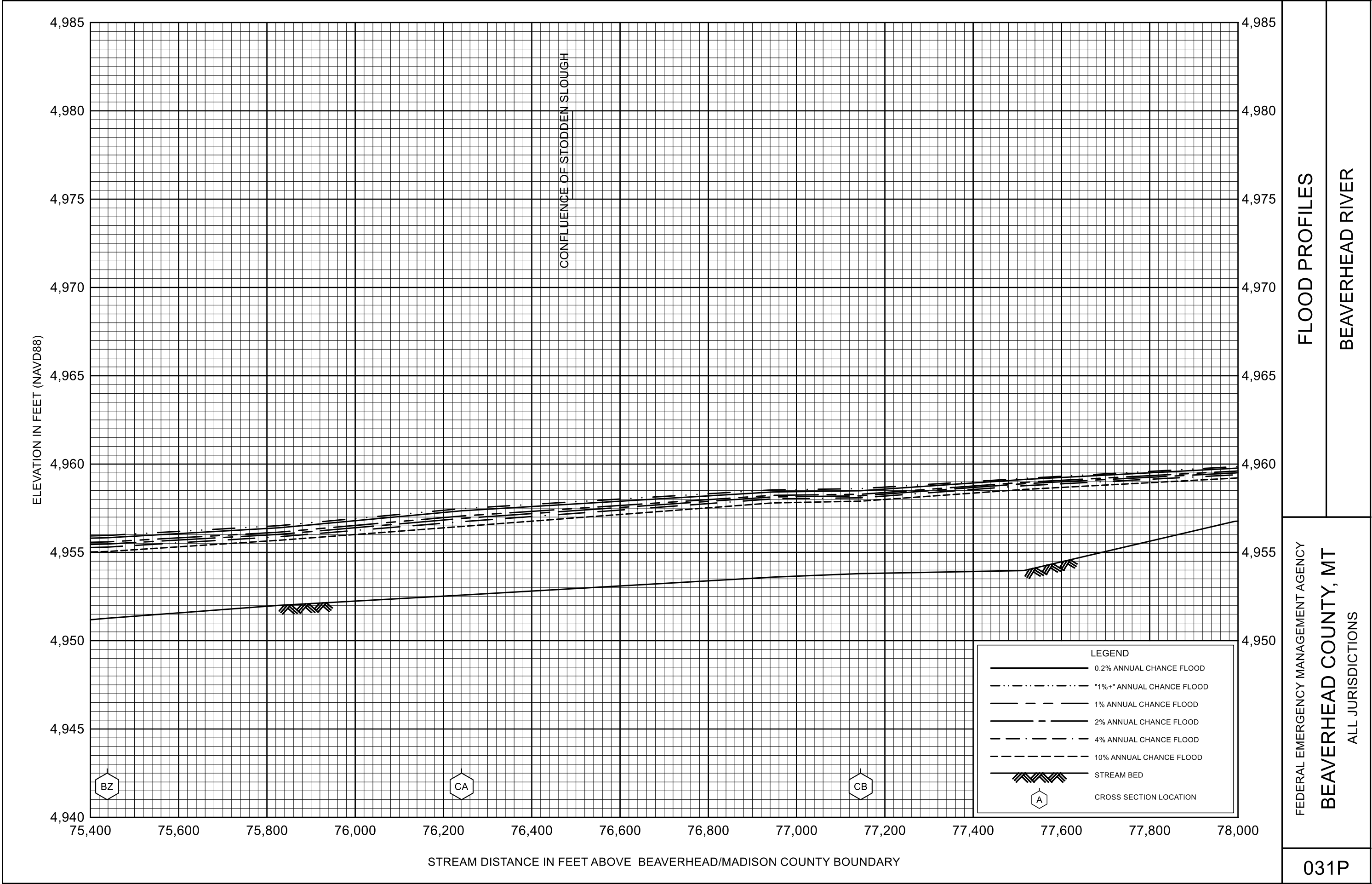
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





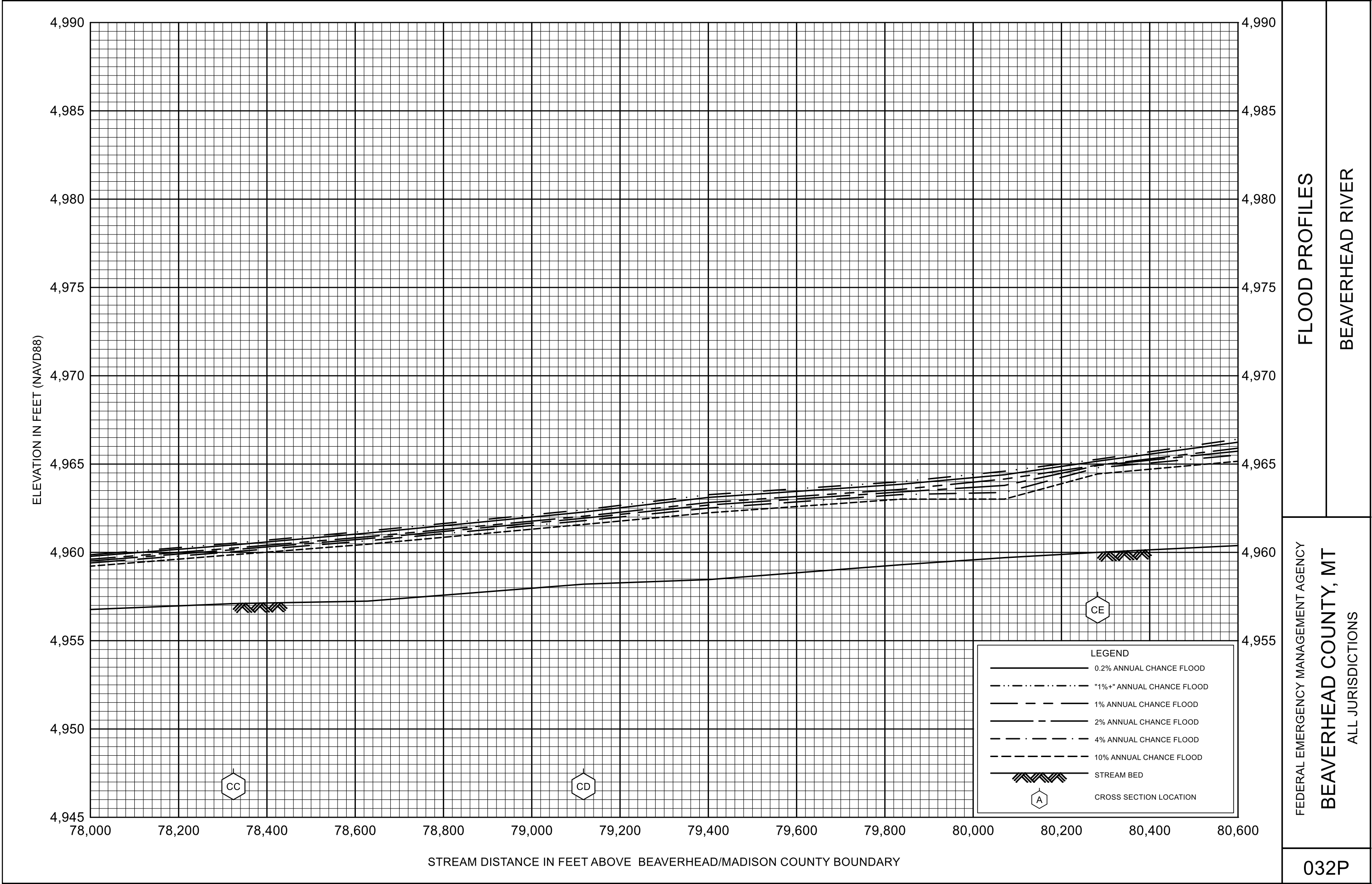
FLOOD PROFILES

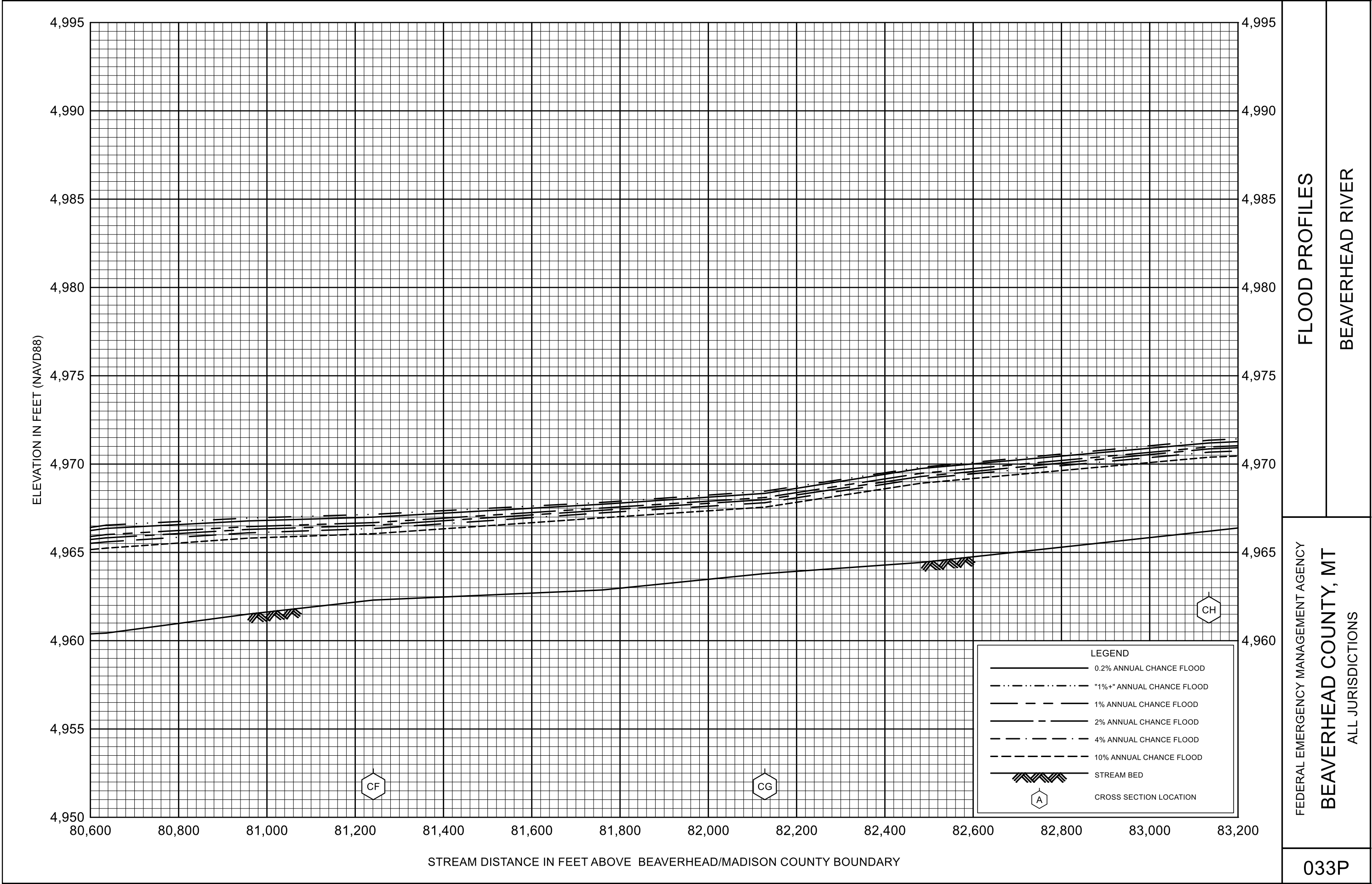
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





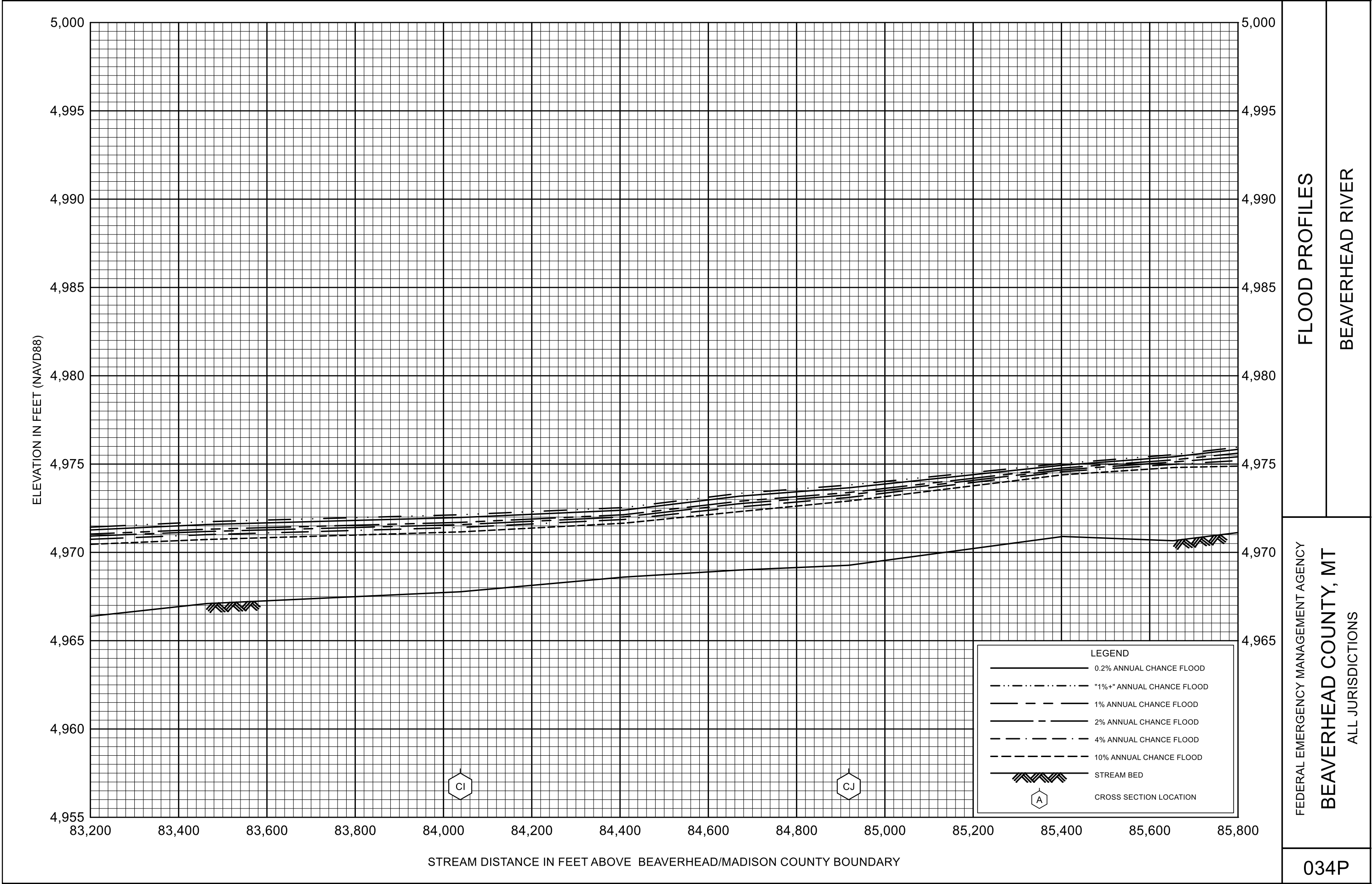
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



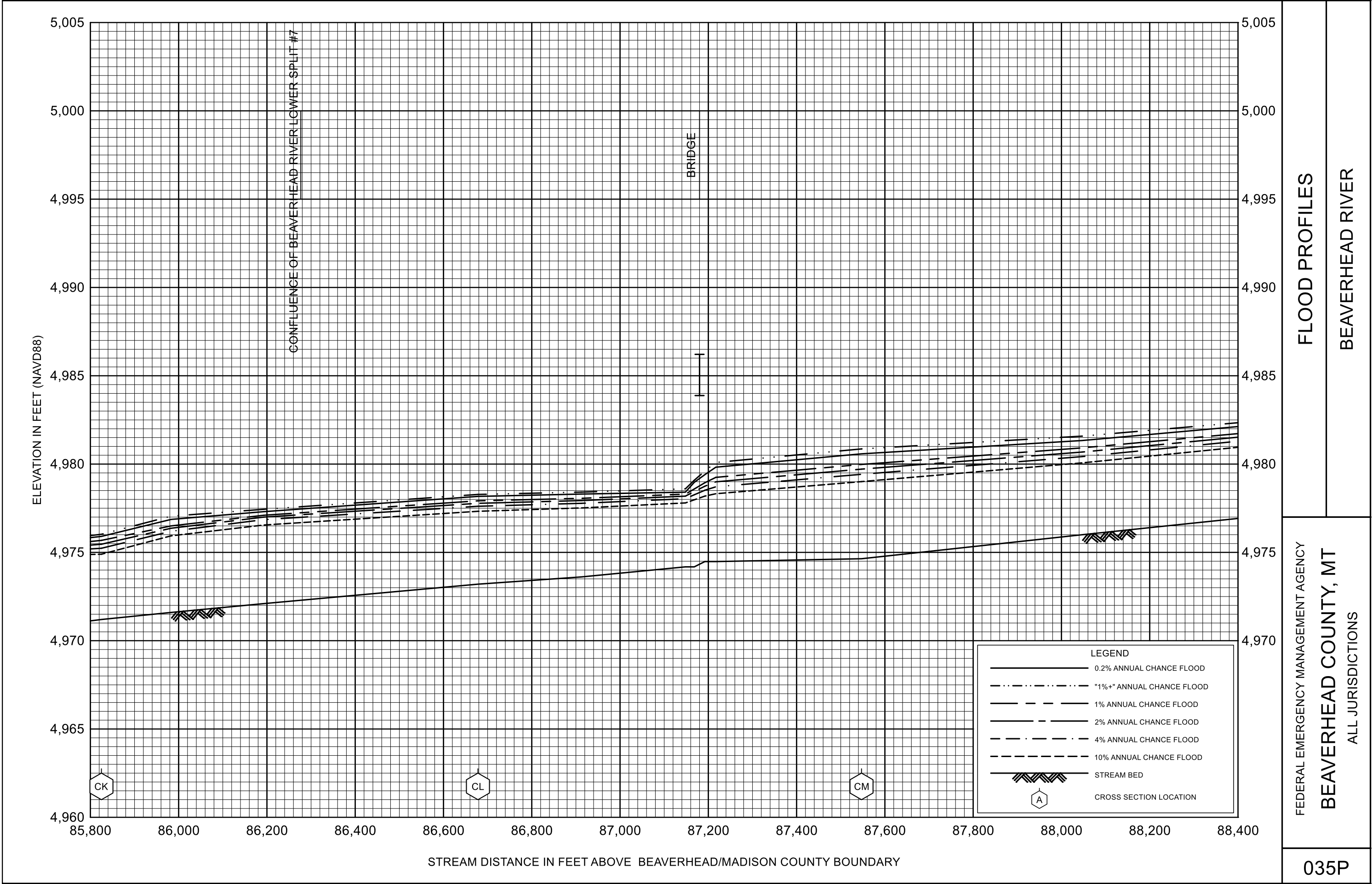
FLOOD PROFILES

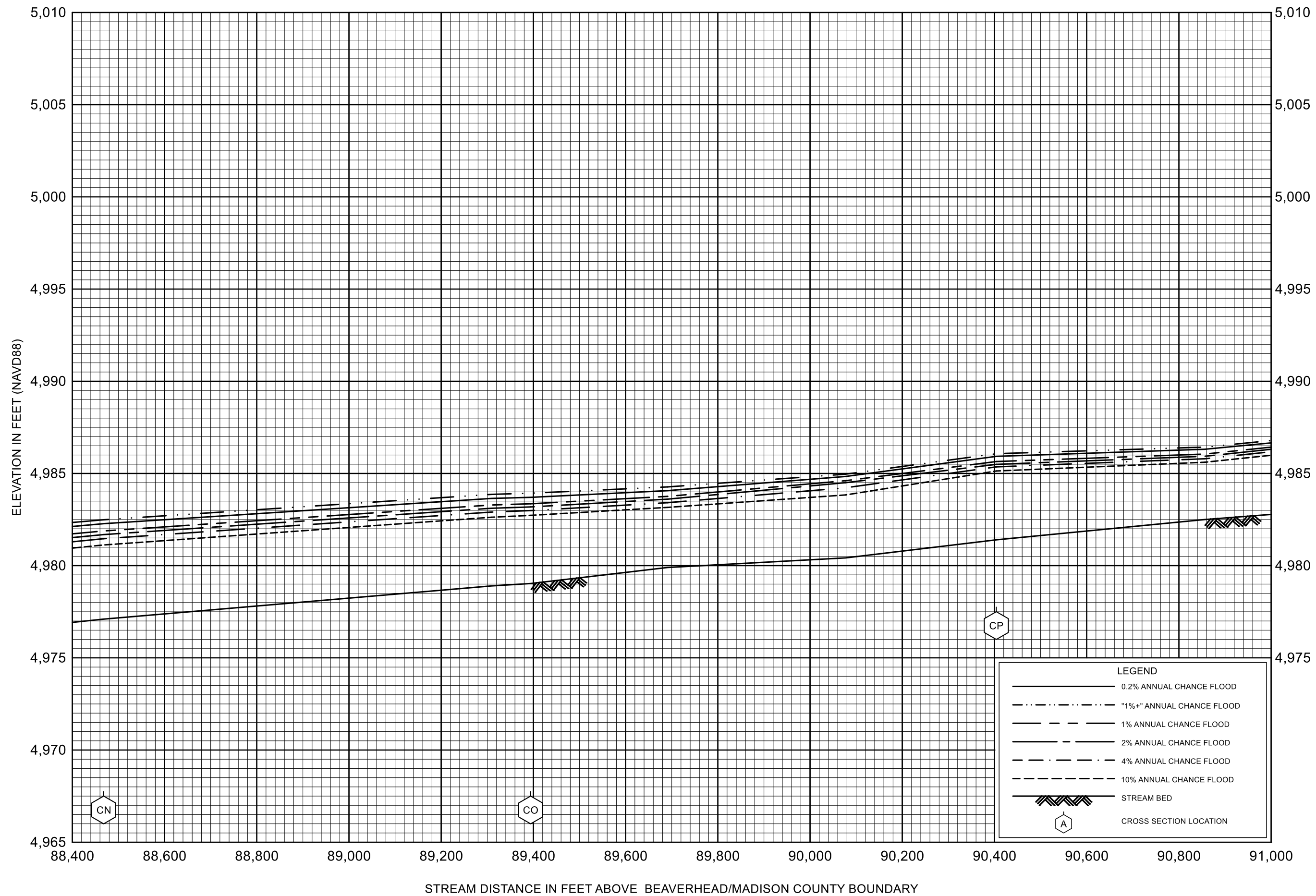
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





FLOOD PROFILES

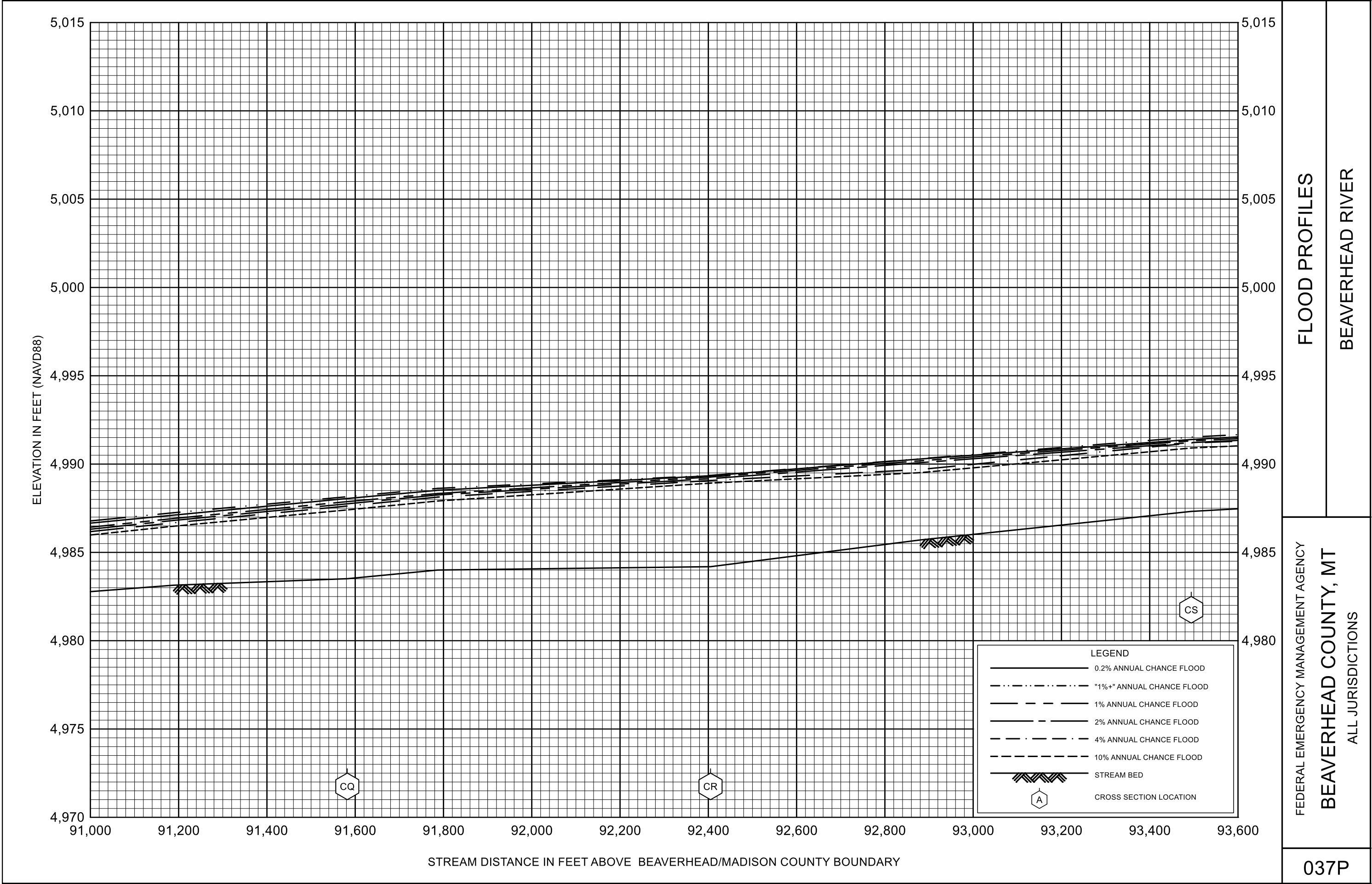
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS

036P



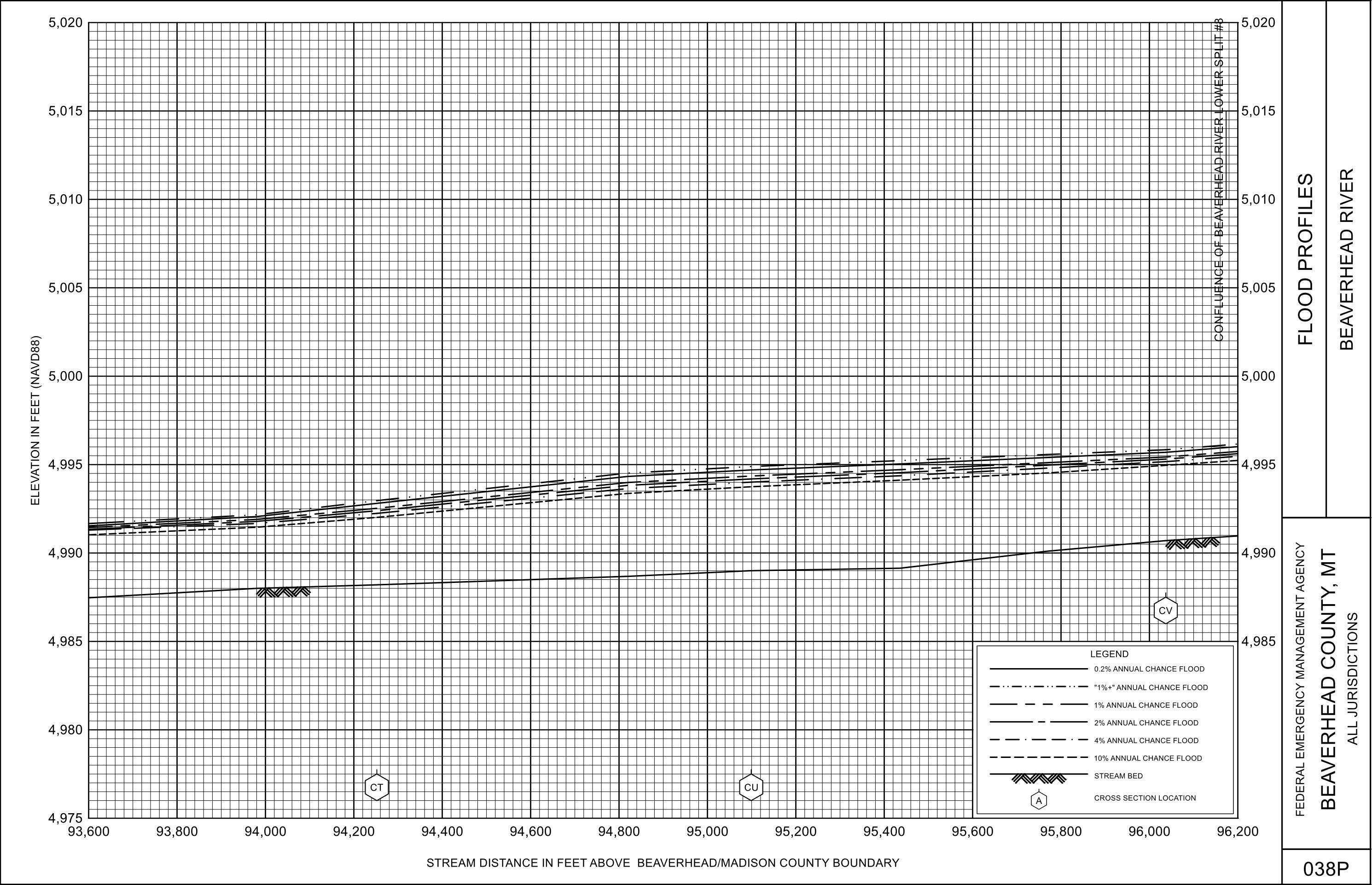
FLOOD PROFILES

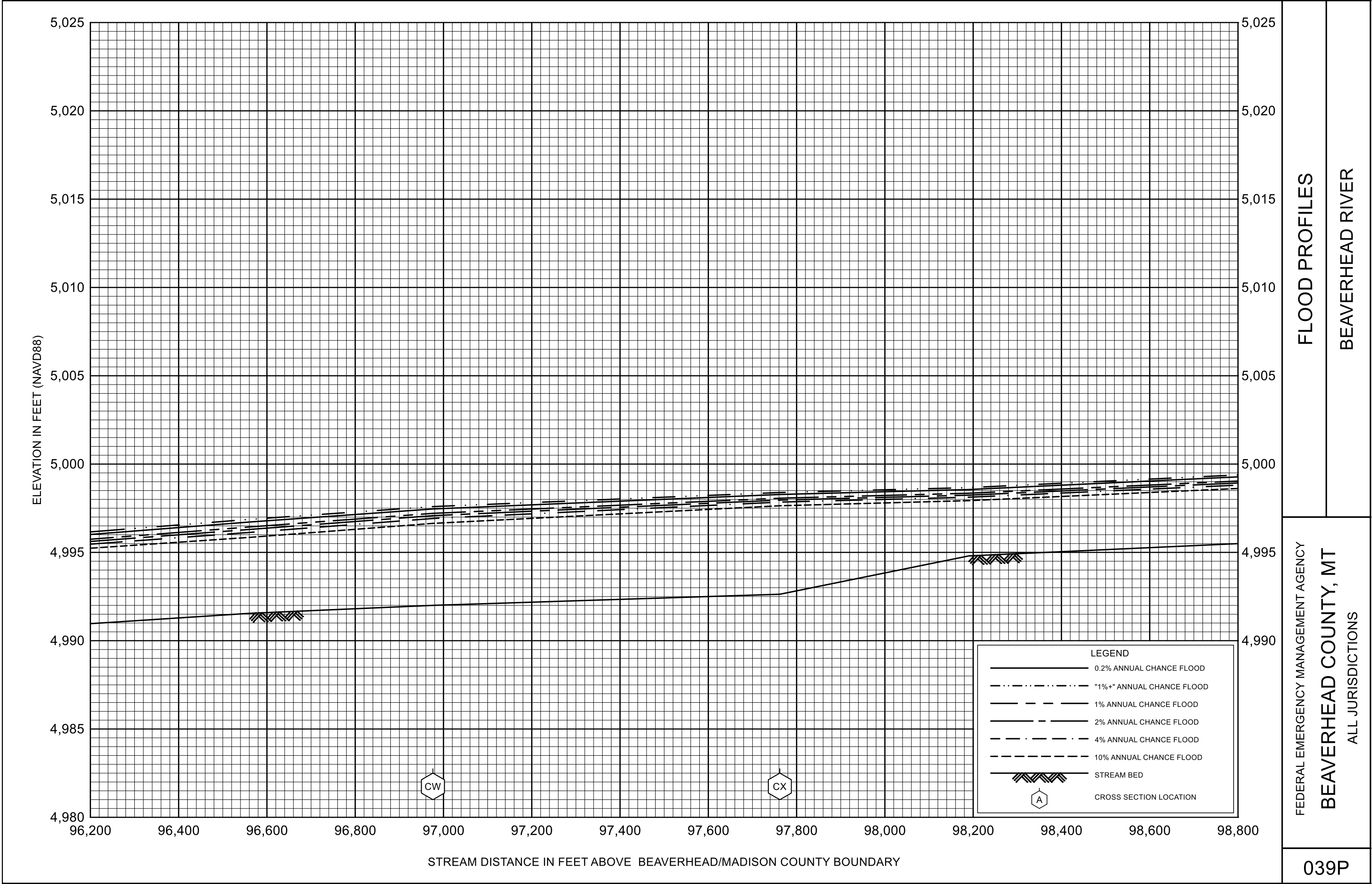
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





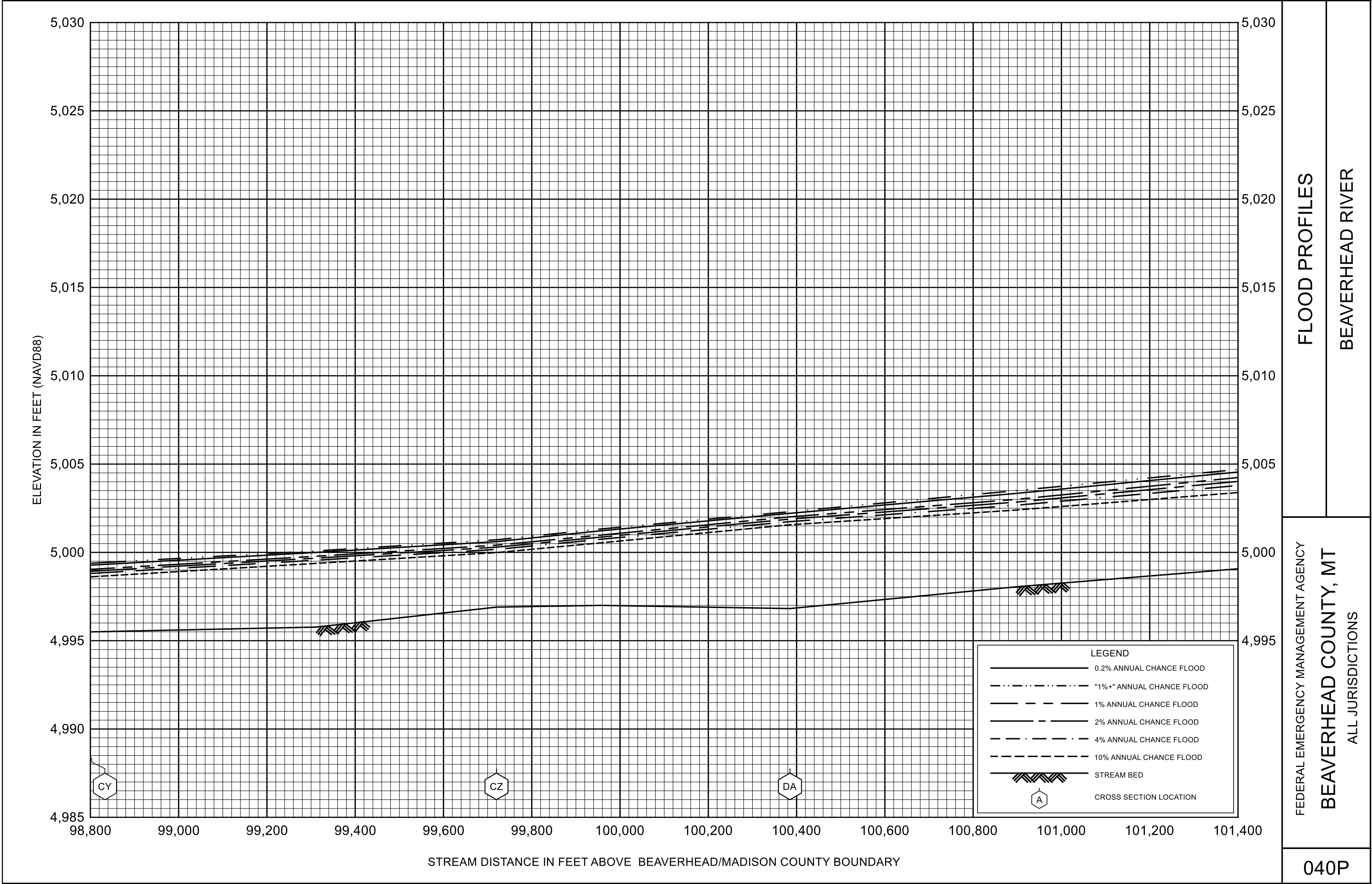
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



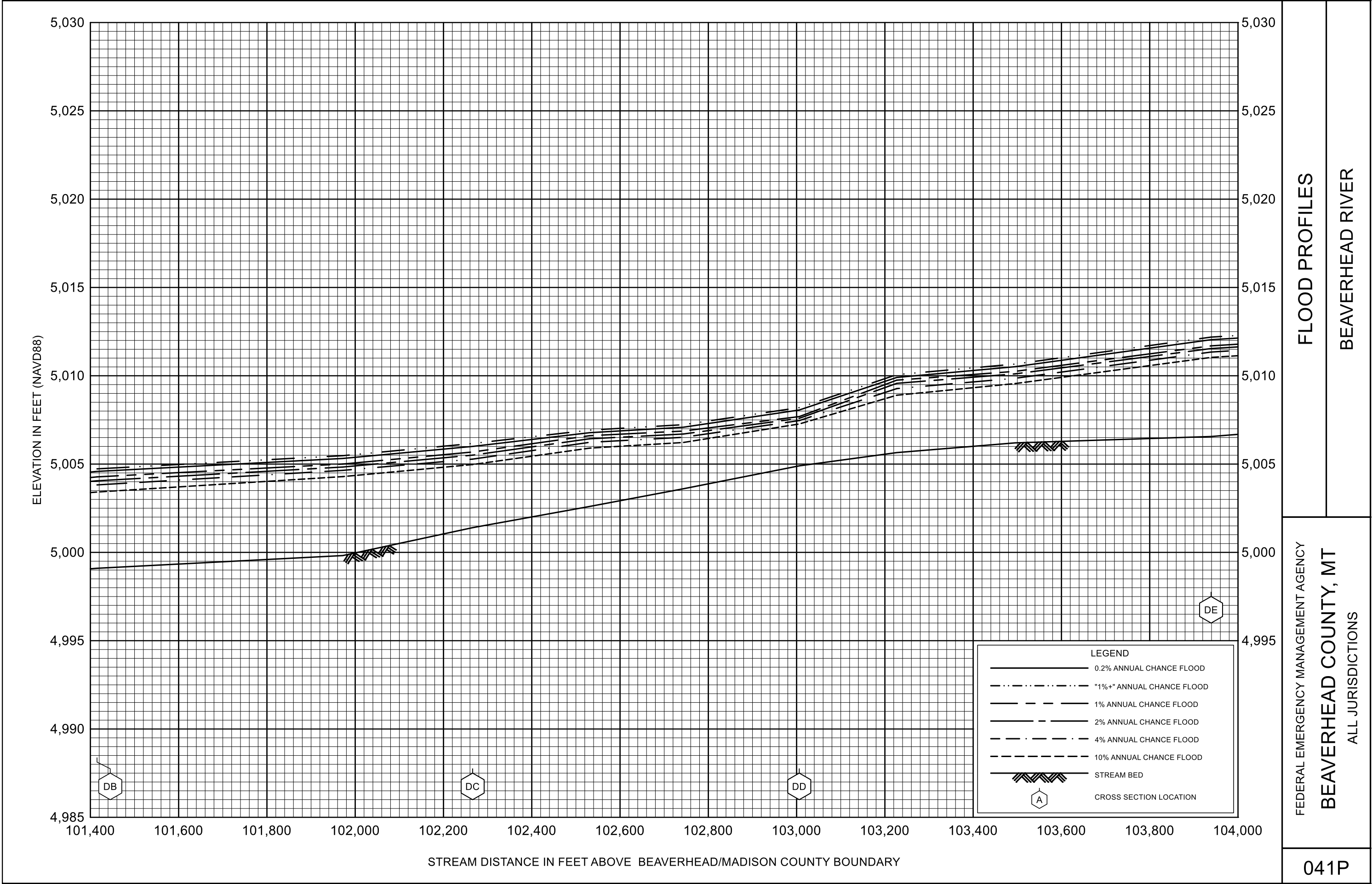
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



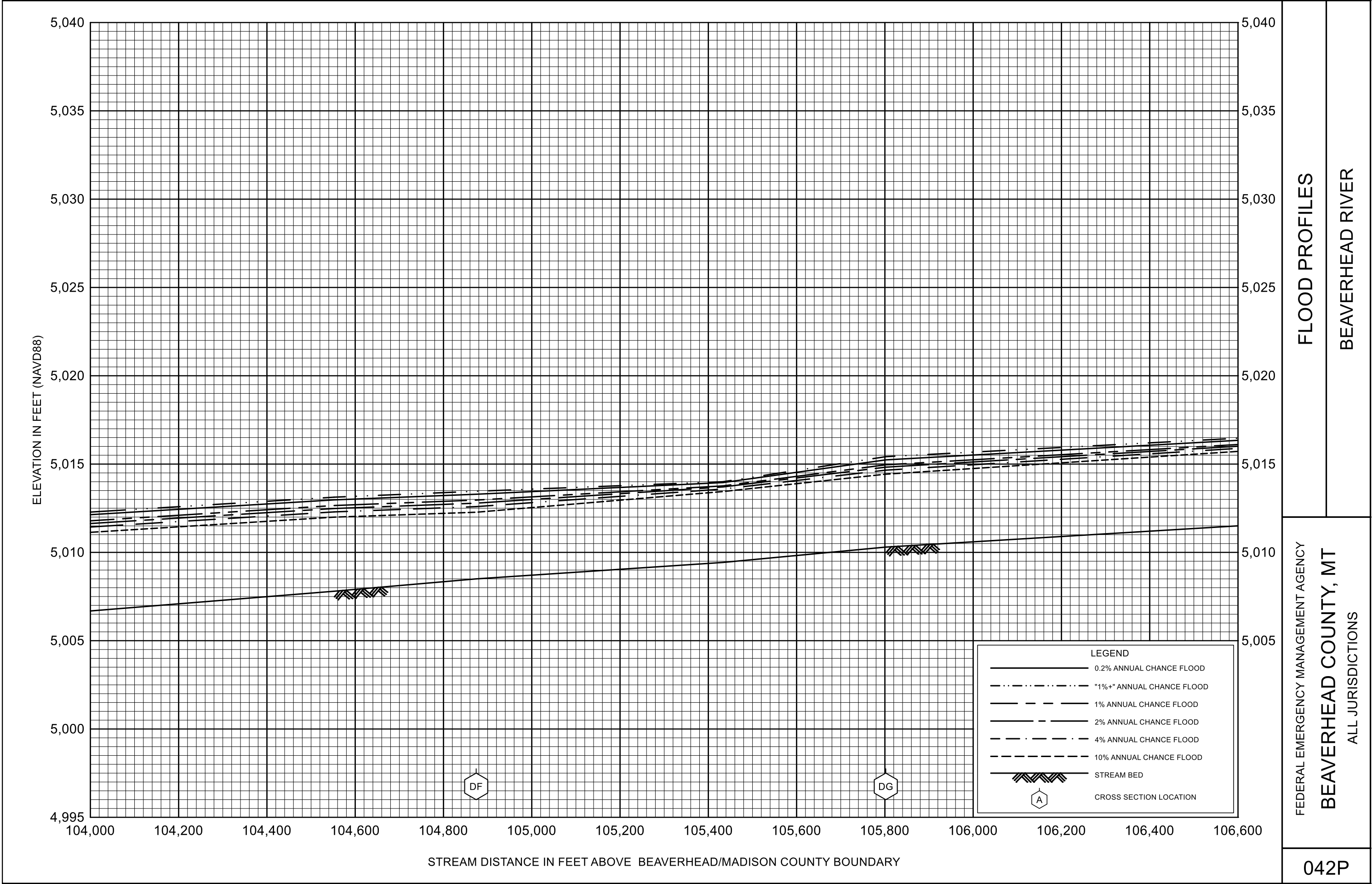
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

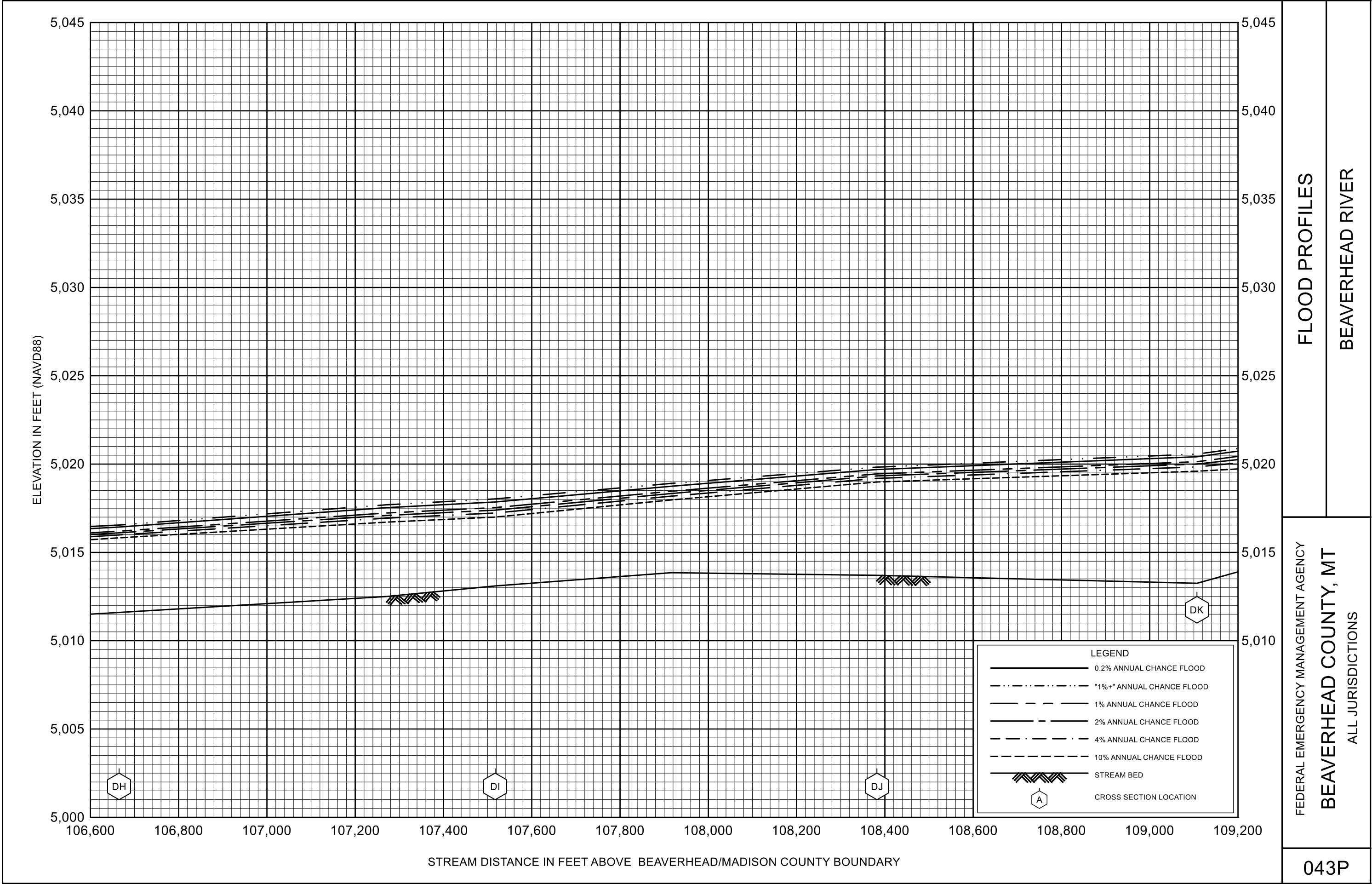
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



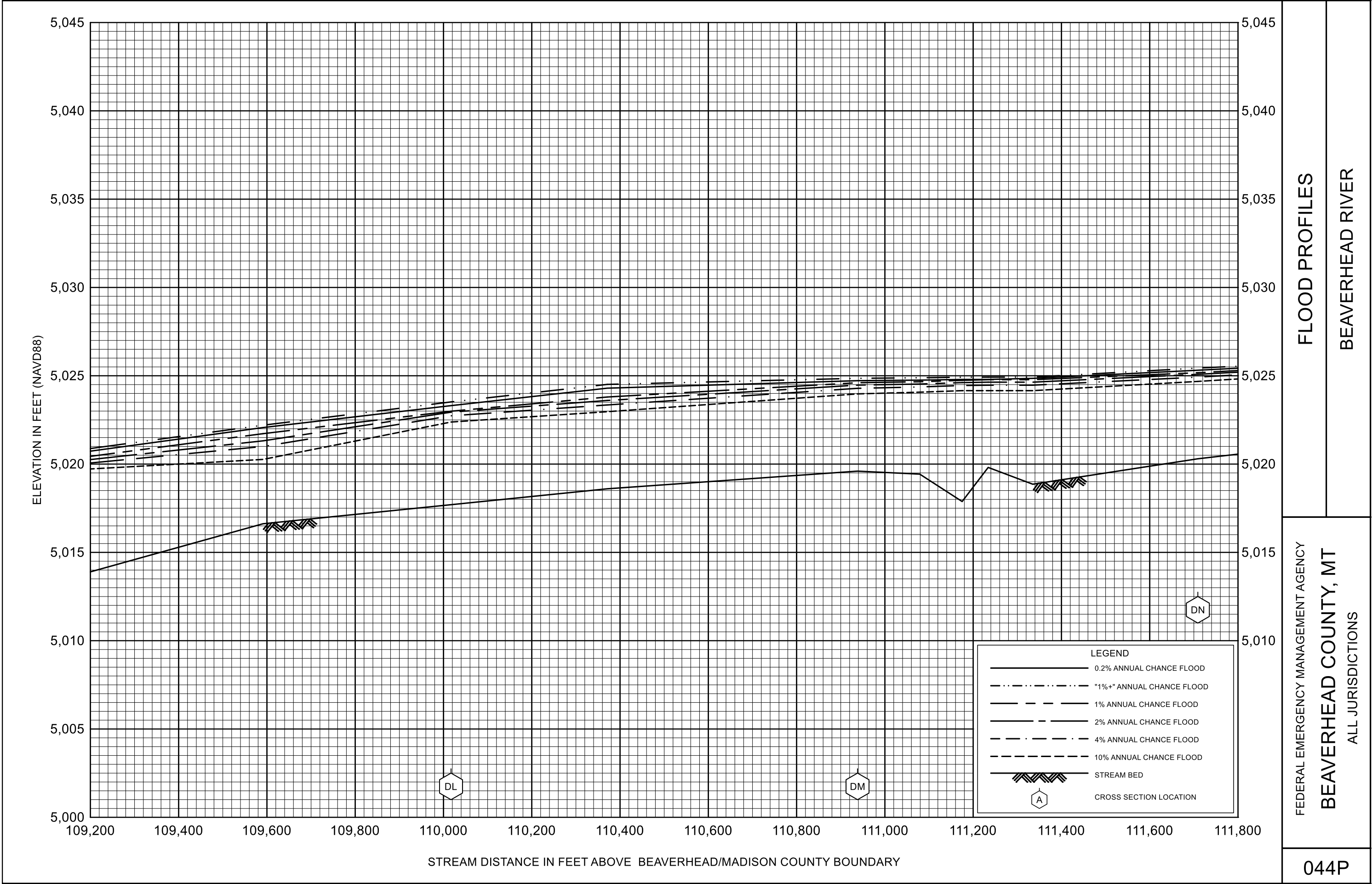
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

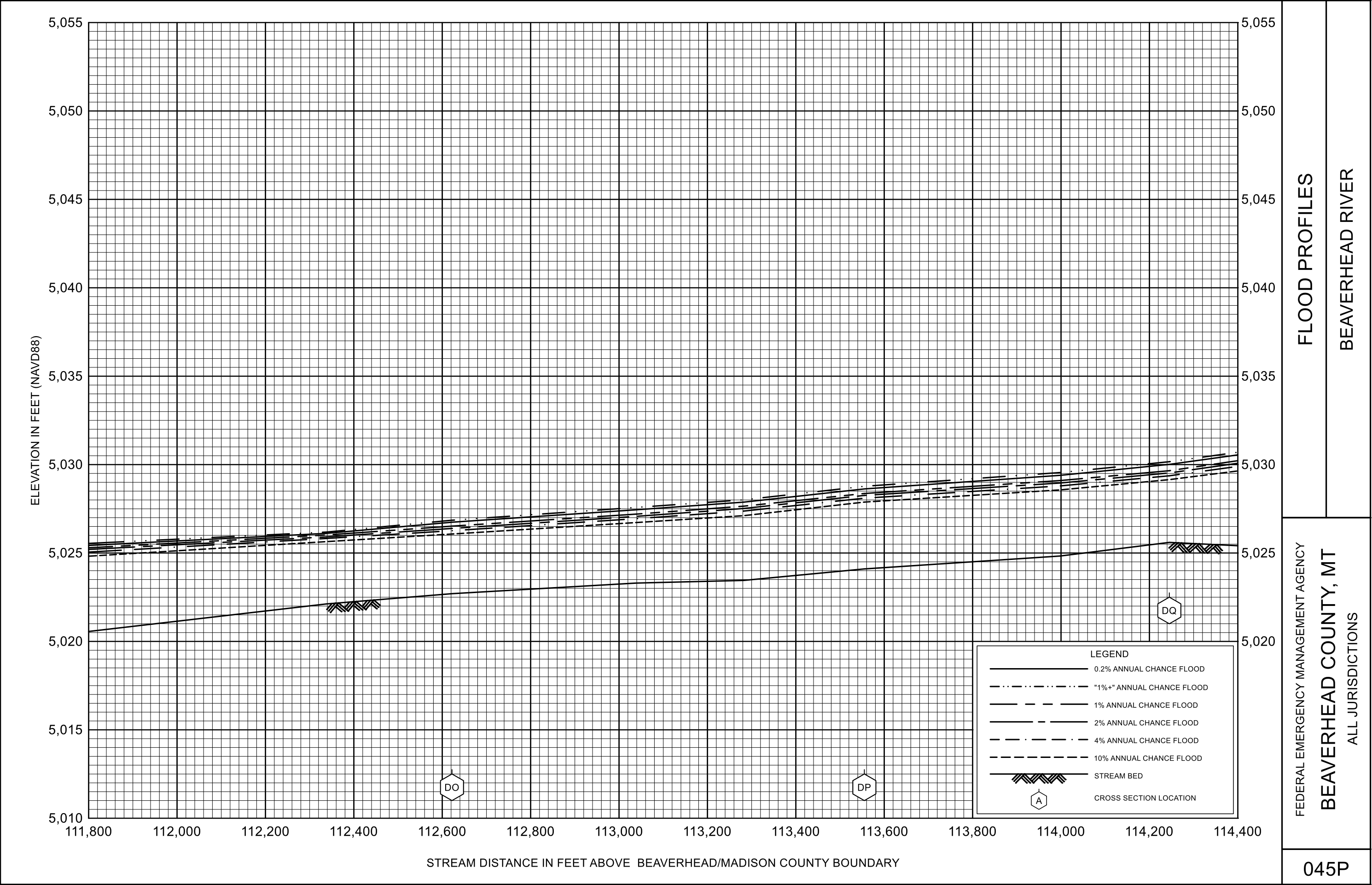
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



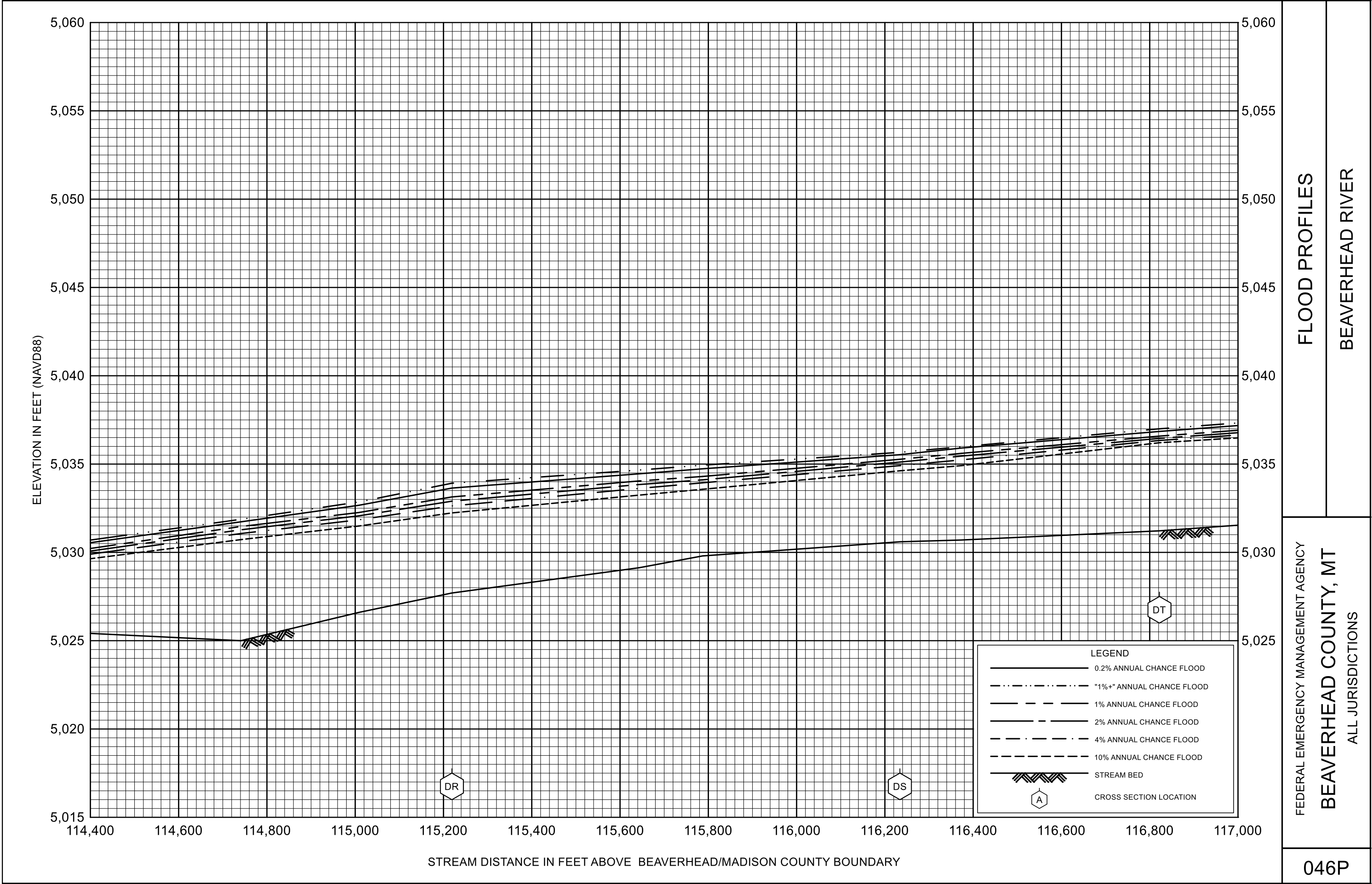
FLOOD PROFILES

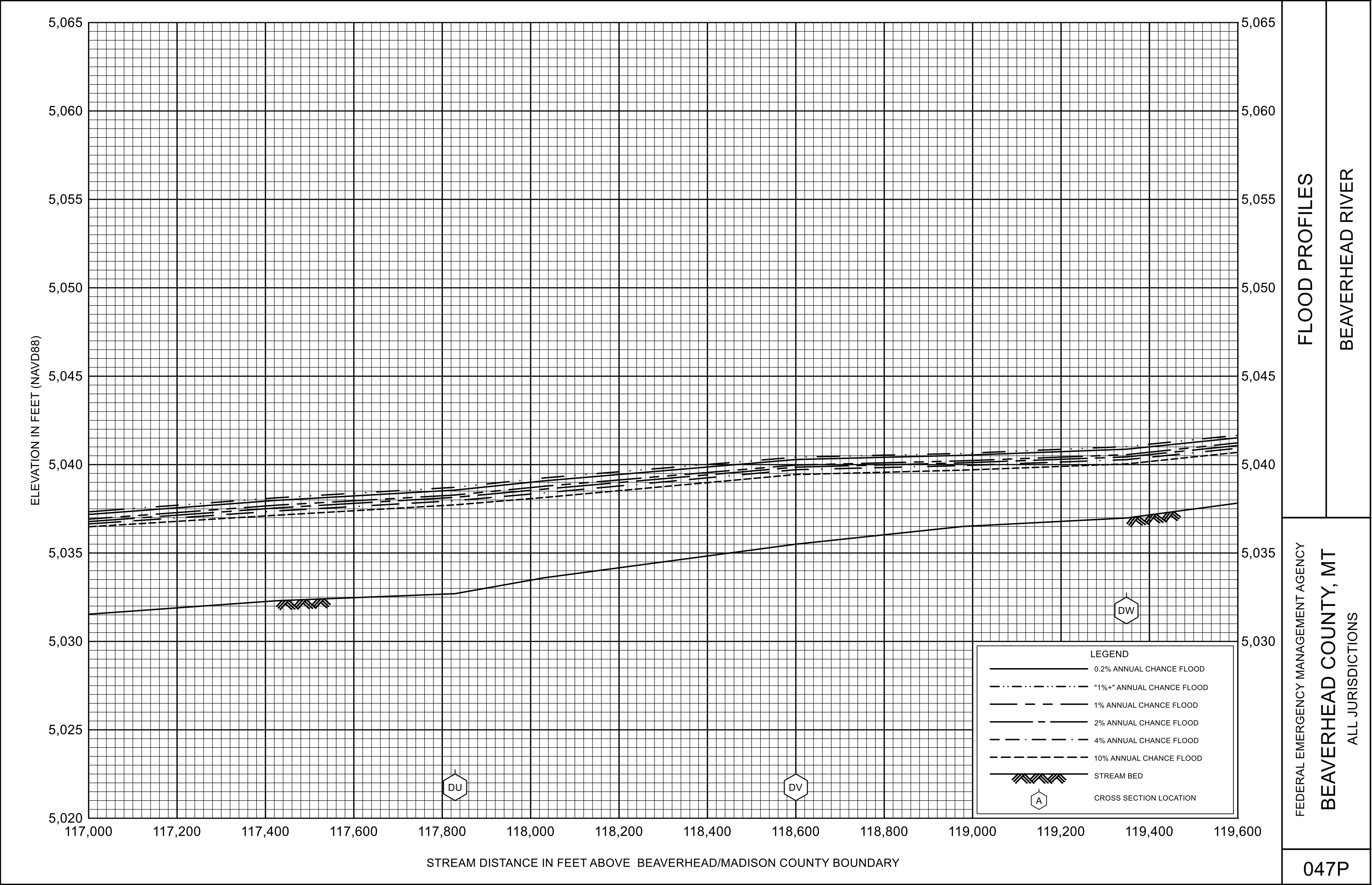
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





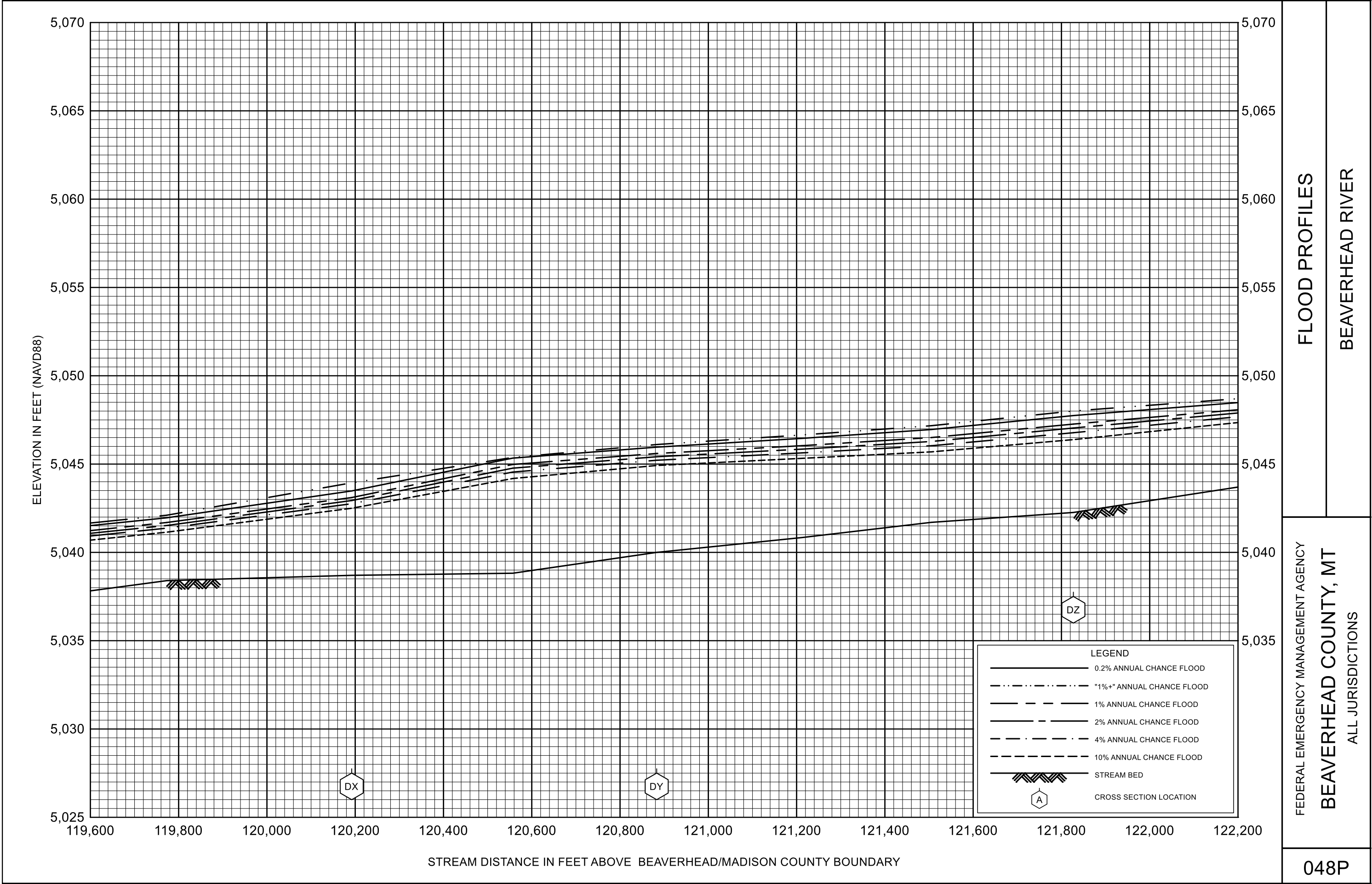
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



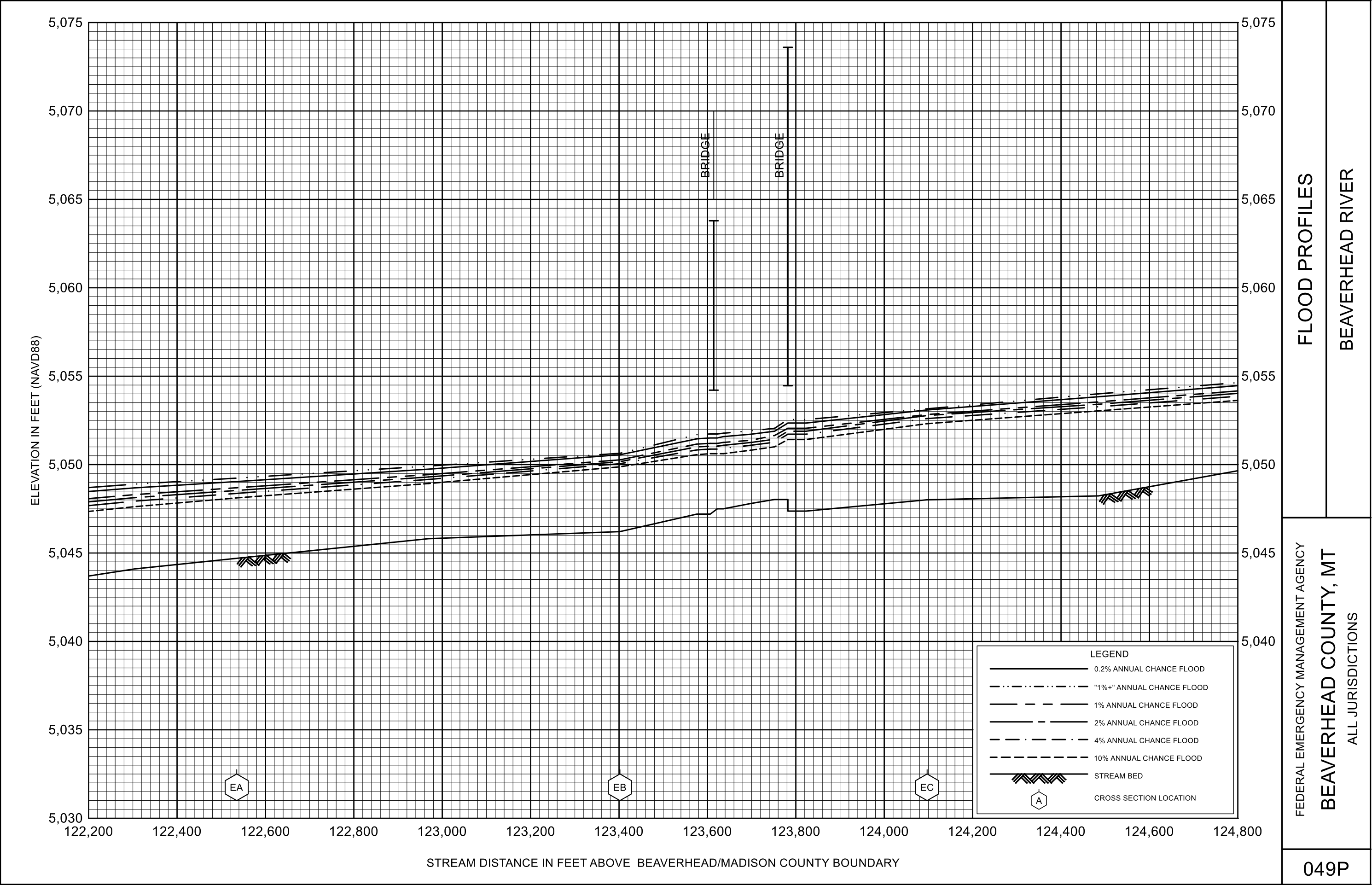
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



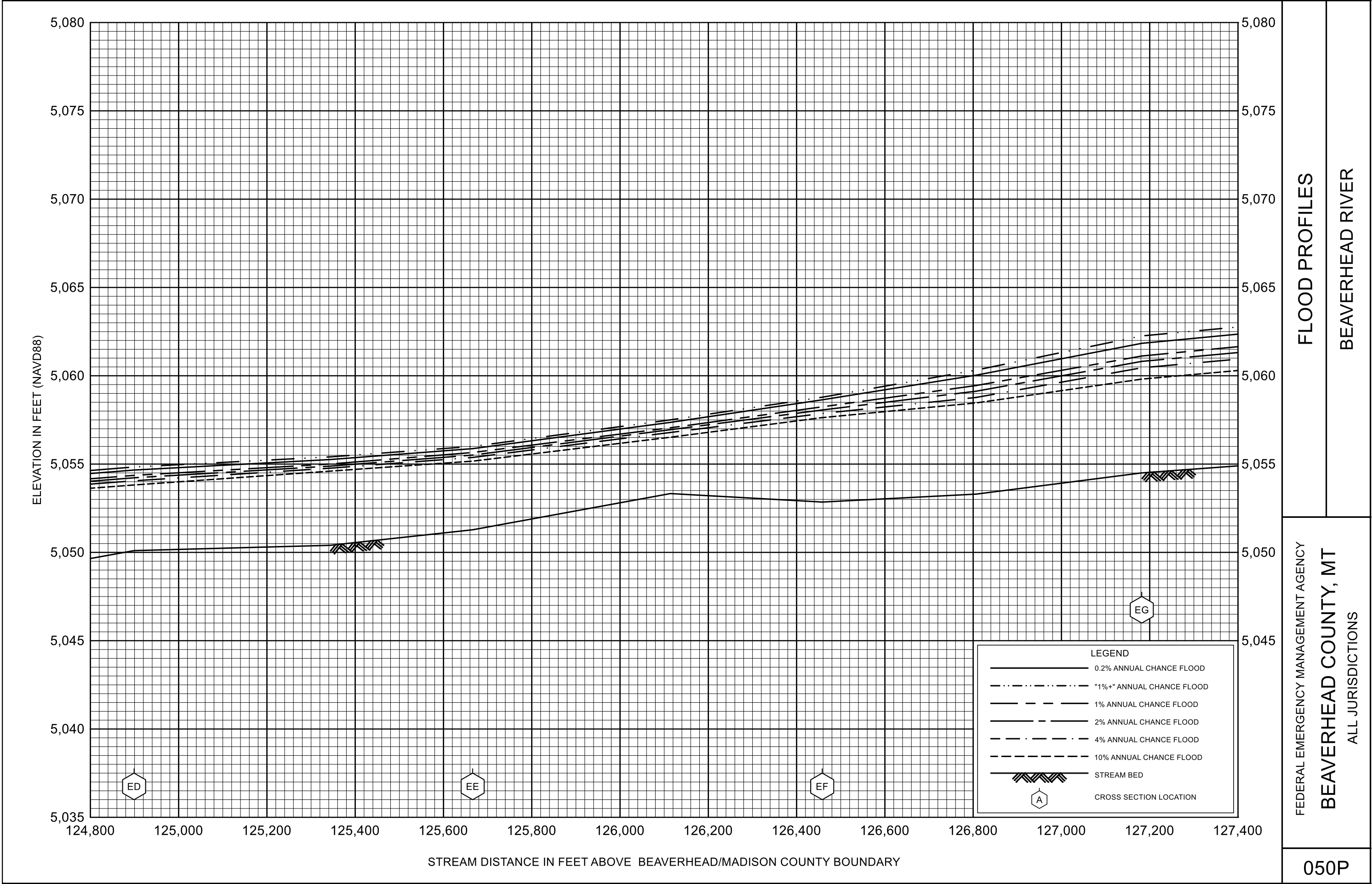
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



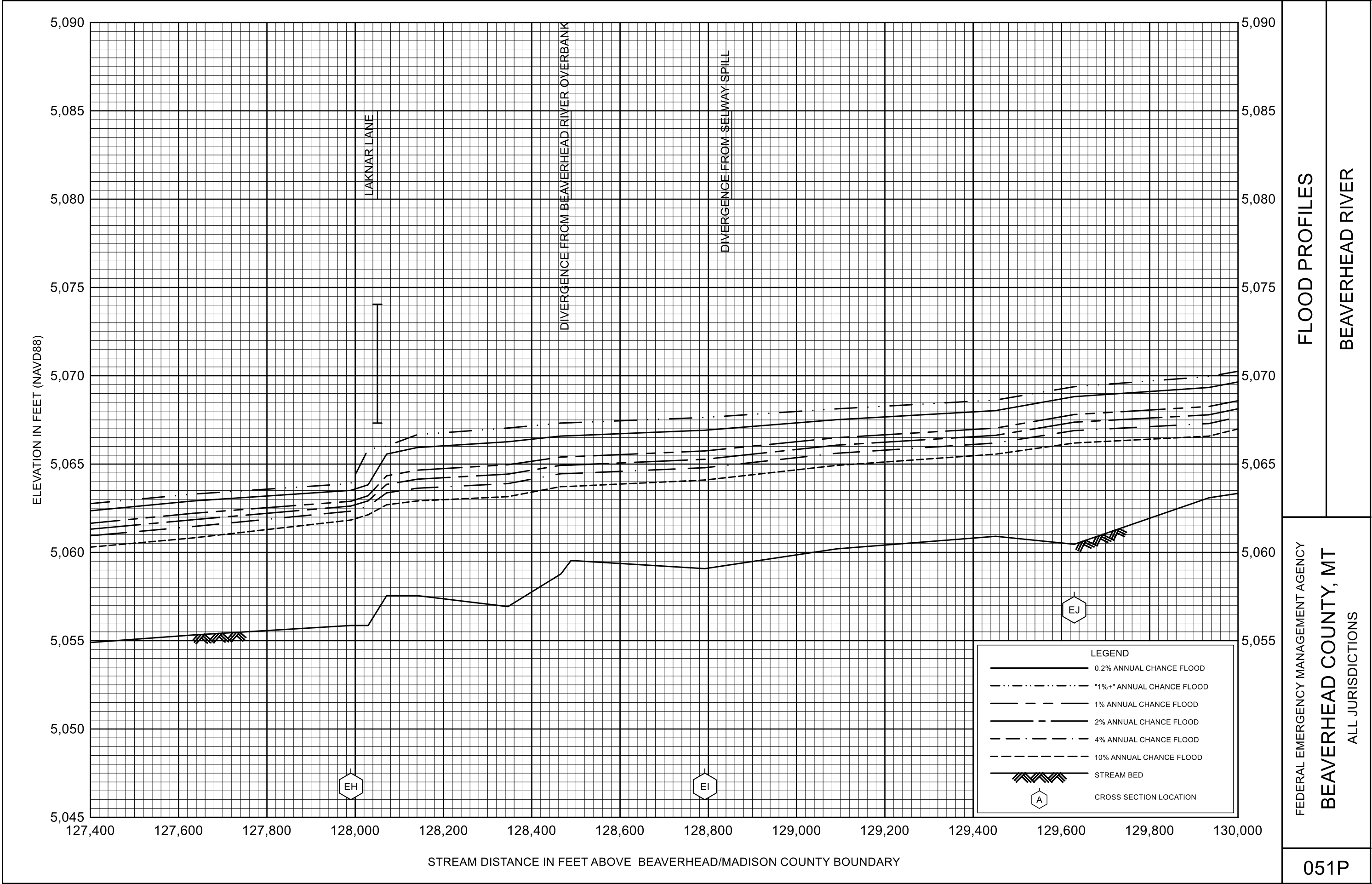
FLOOD PROFILES

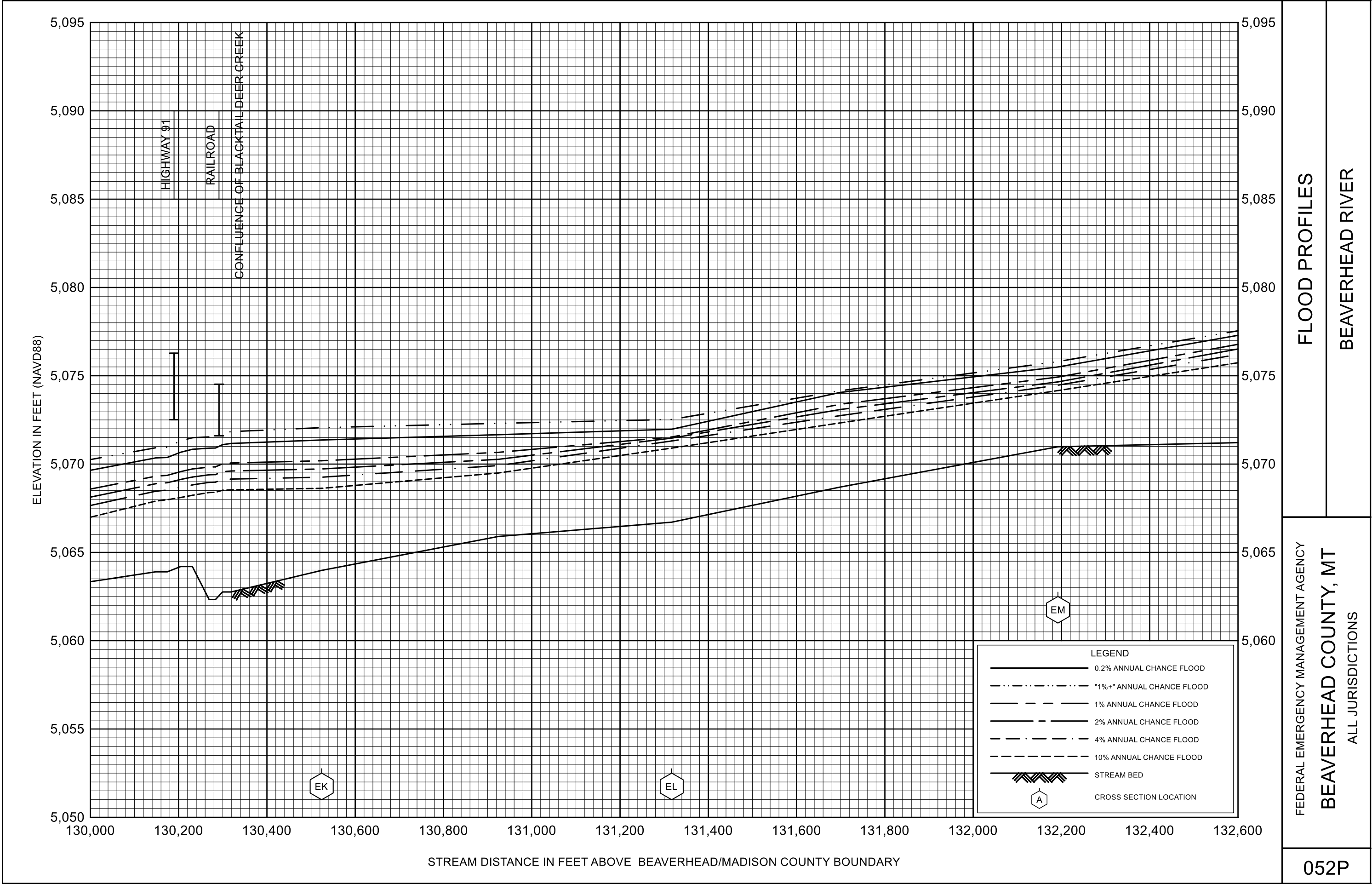
BEAVERHEAD RIVER

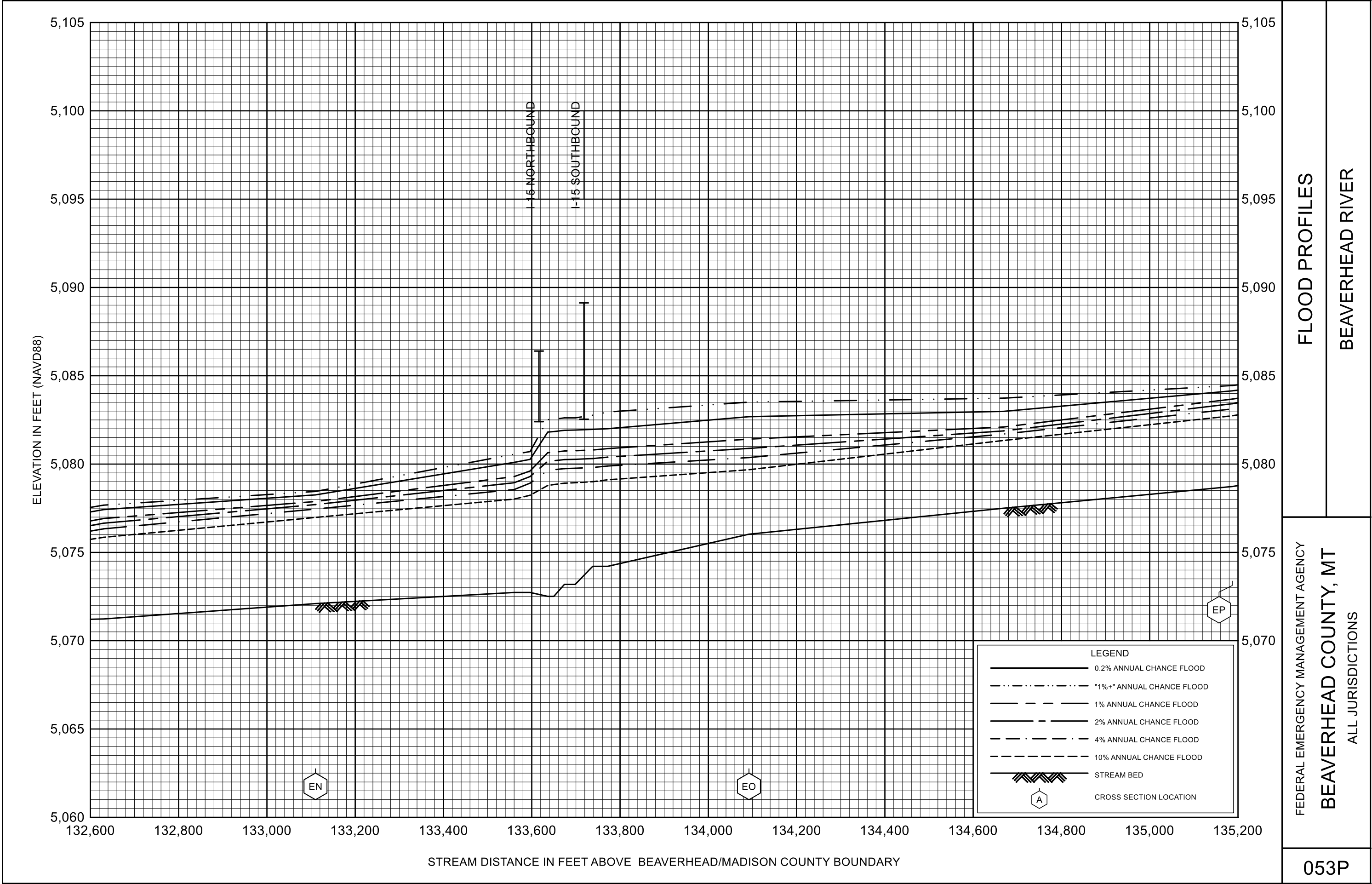
FEDERAL EMERGENCY MANAGEMENT AGENCY

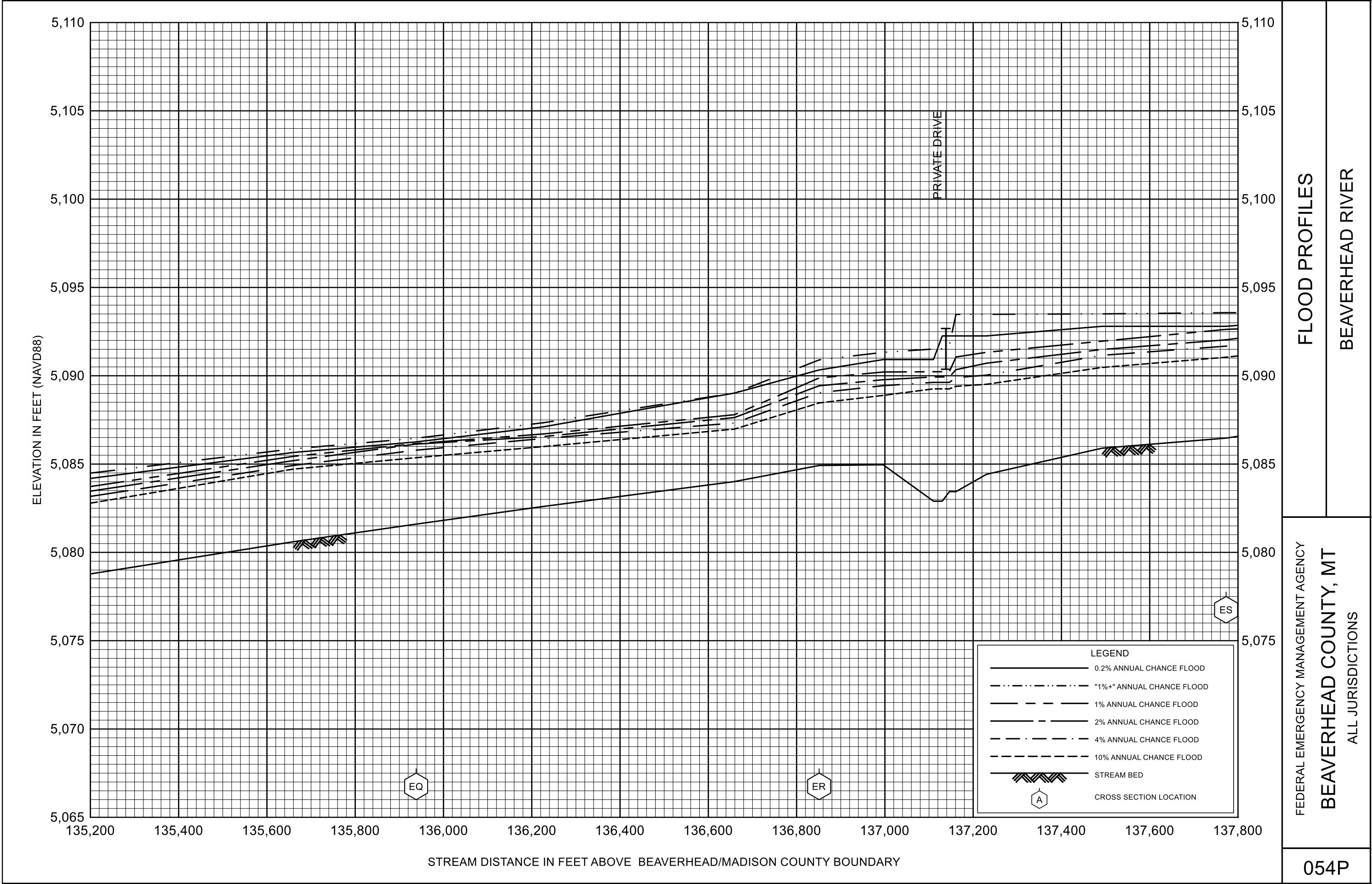
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS









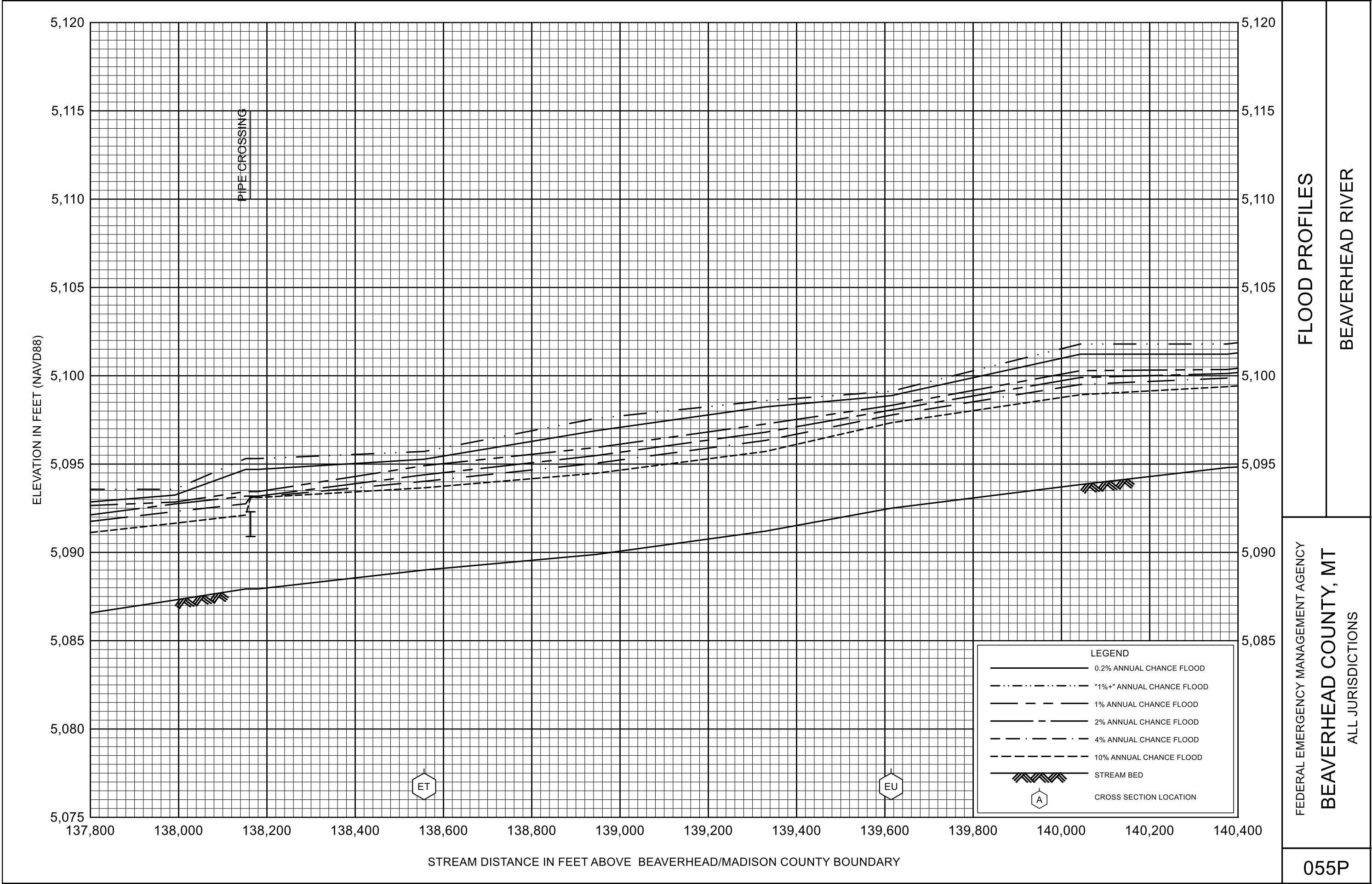
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



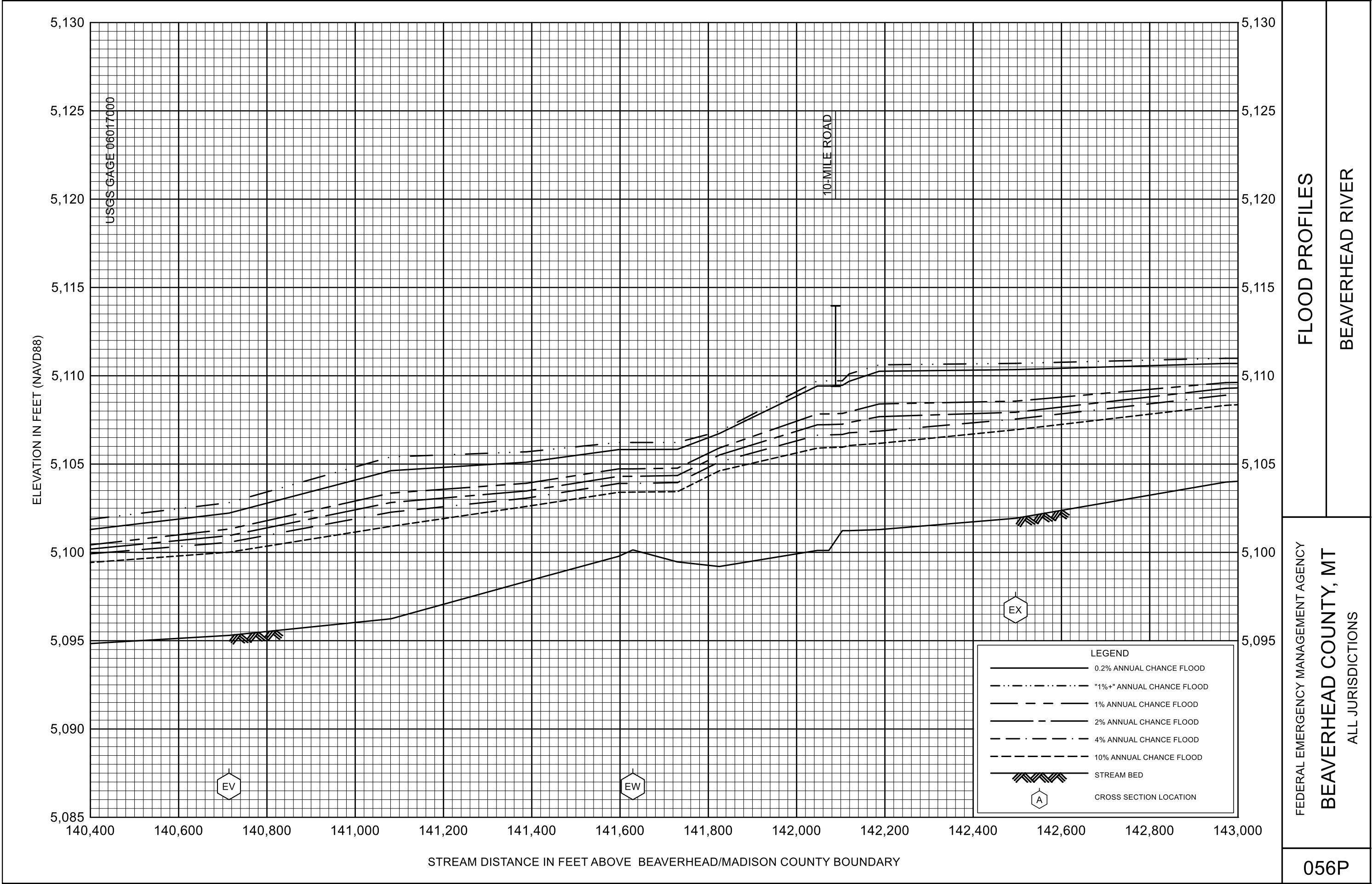
FLOOD PROFILES

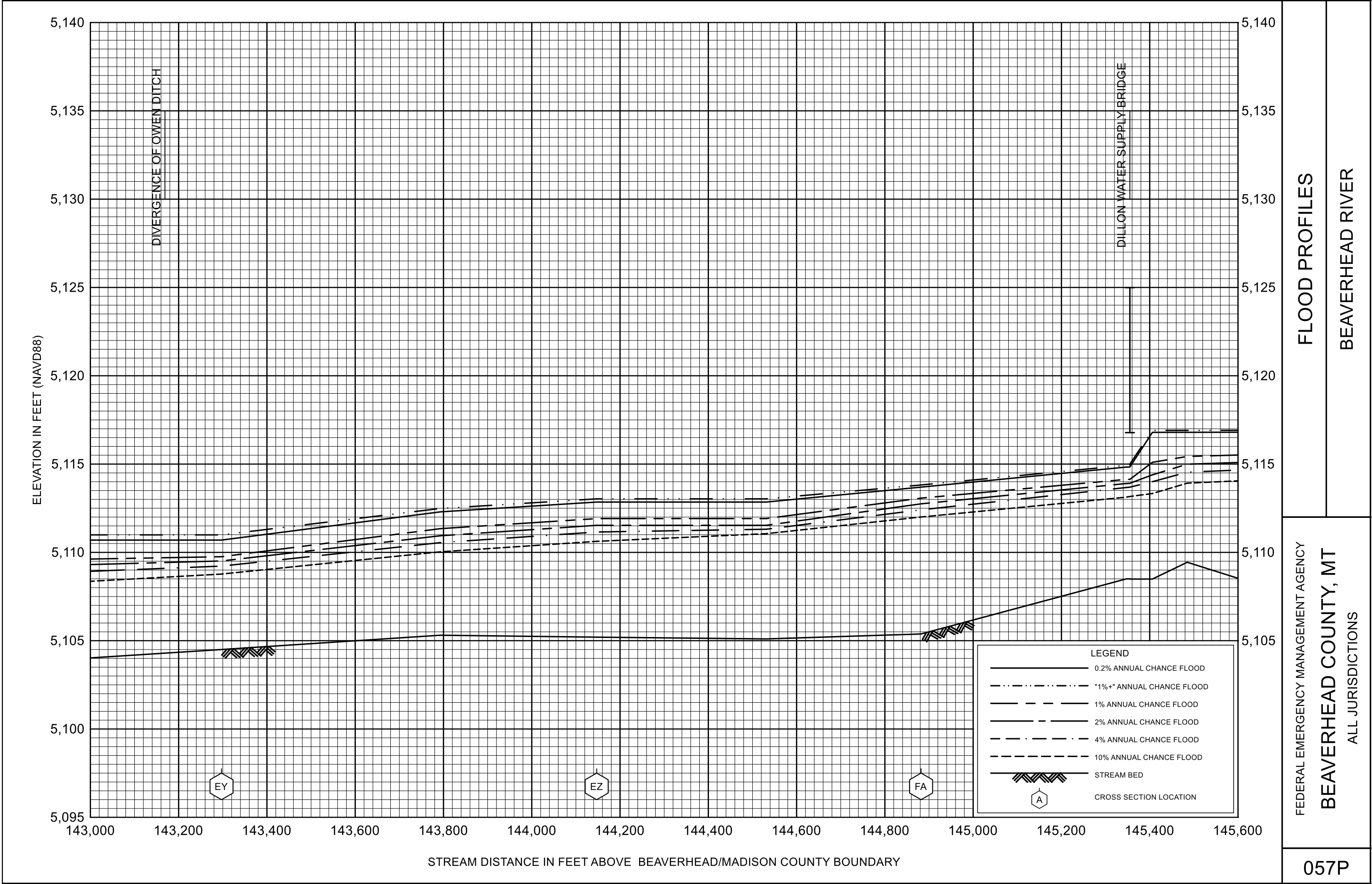
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





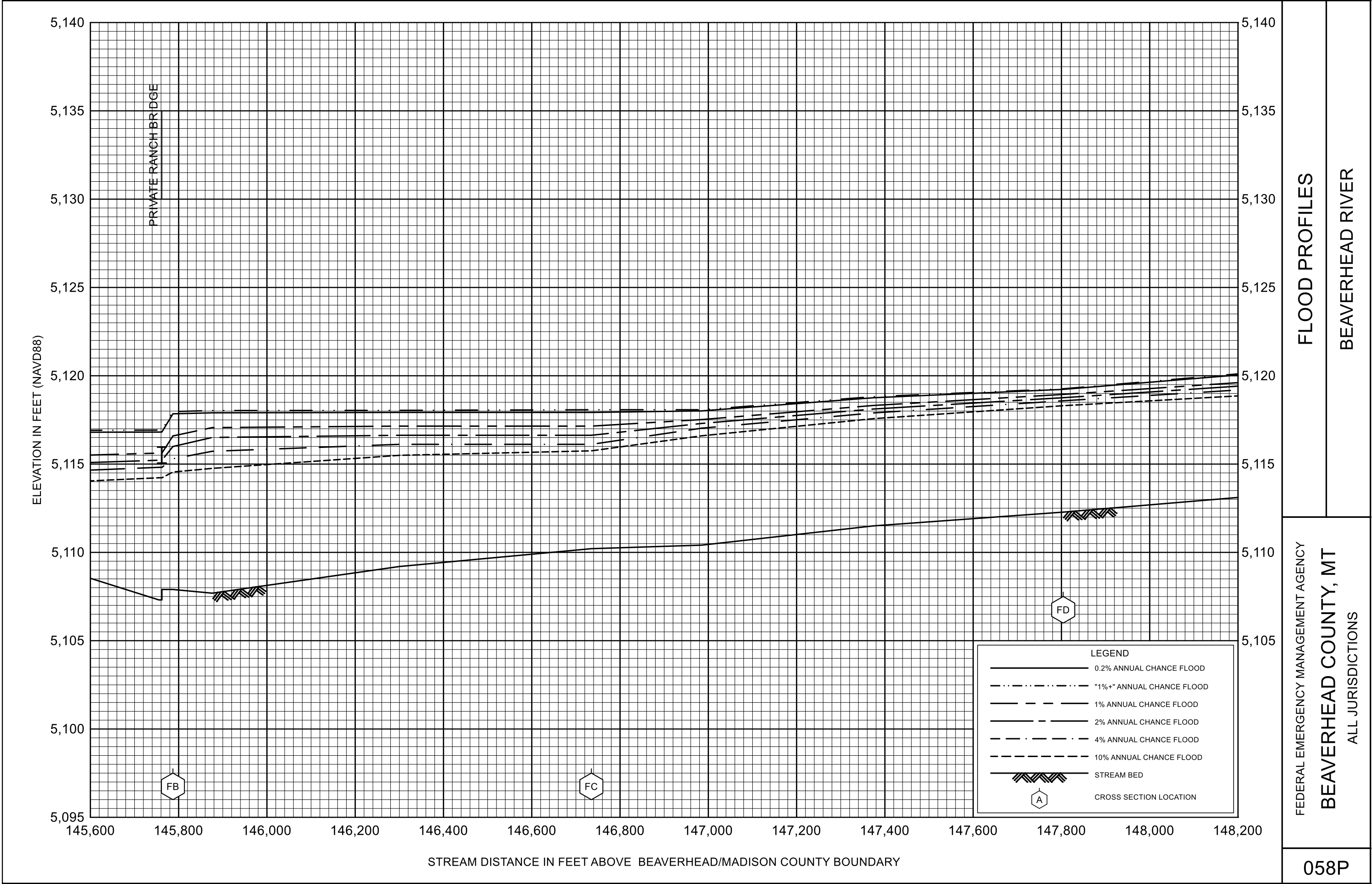
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



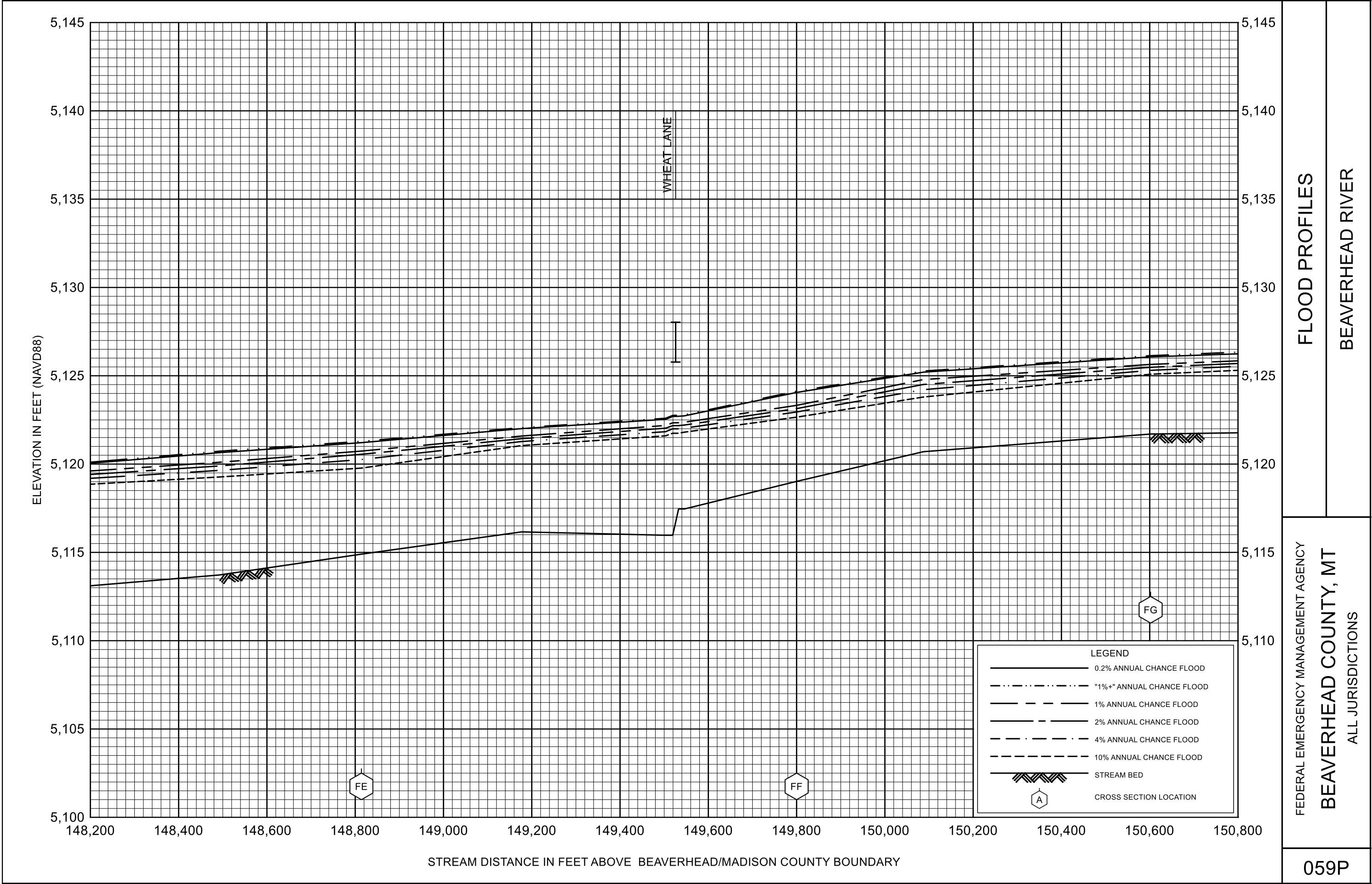
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



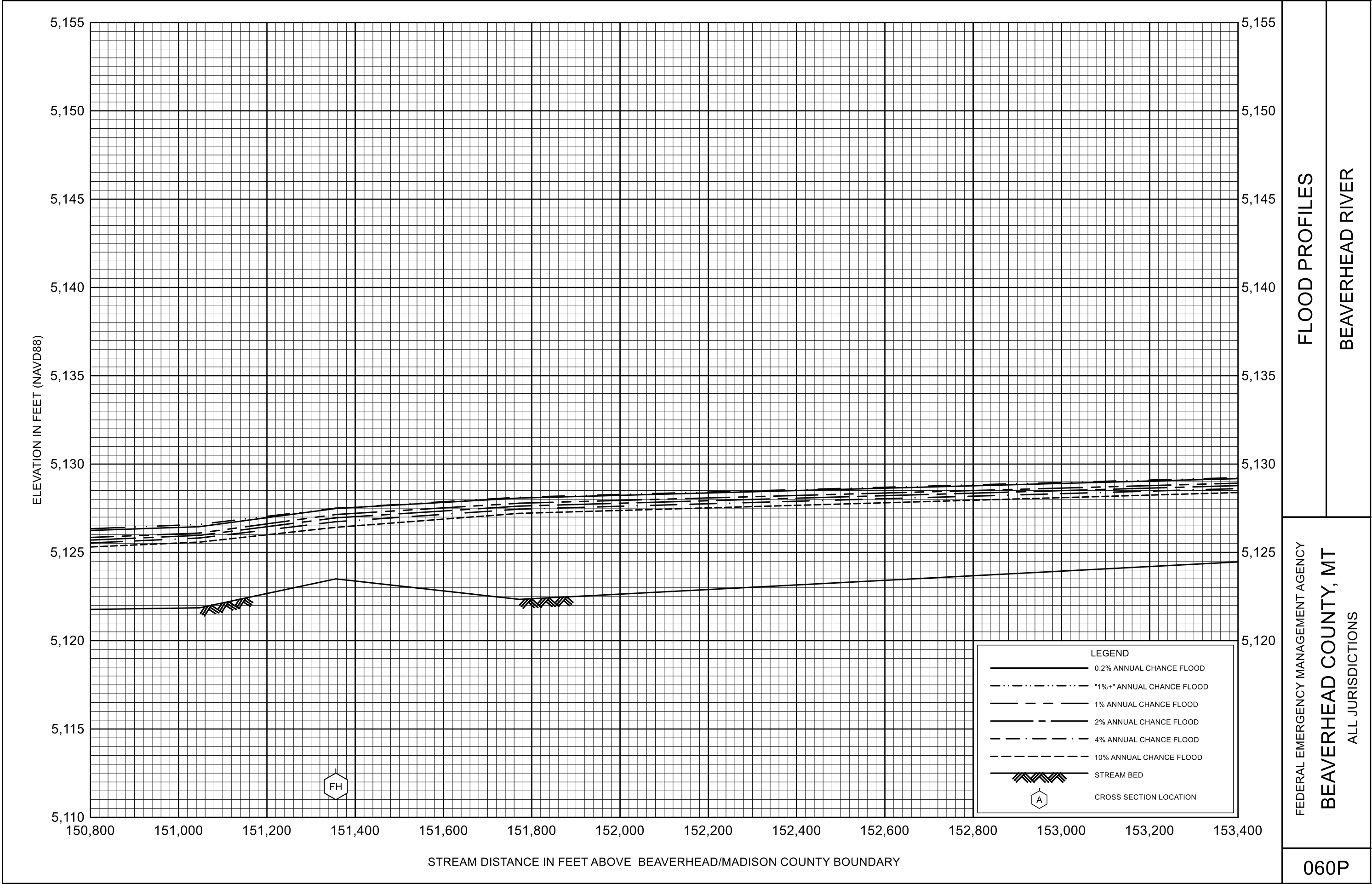
FLOOD PROFILES

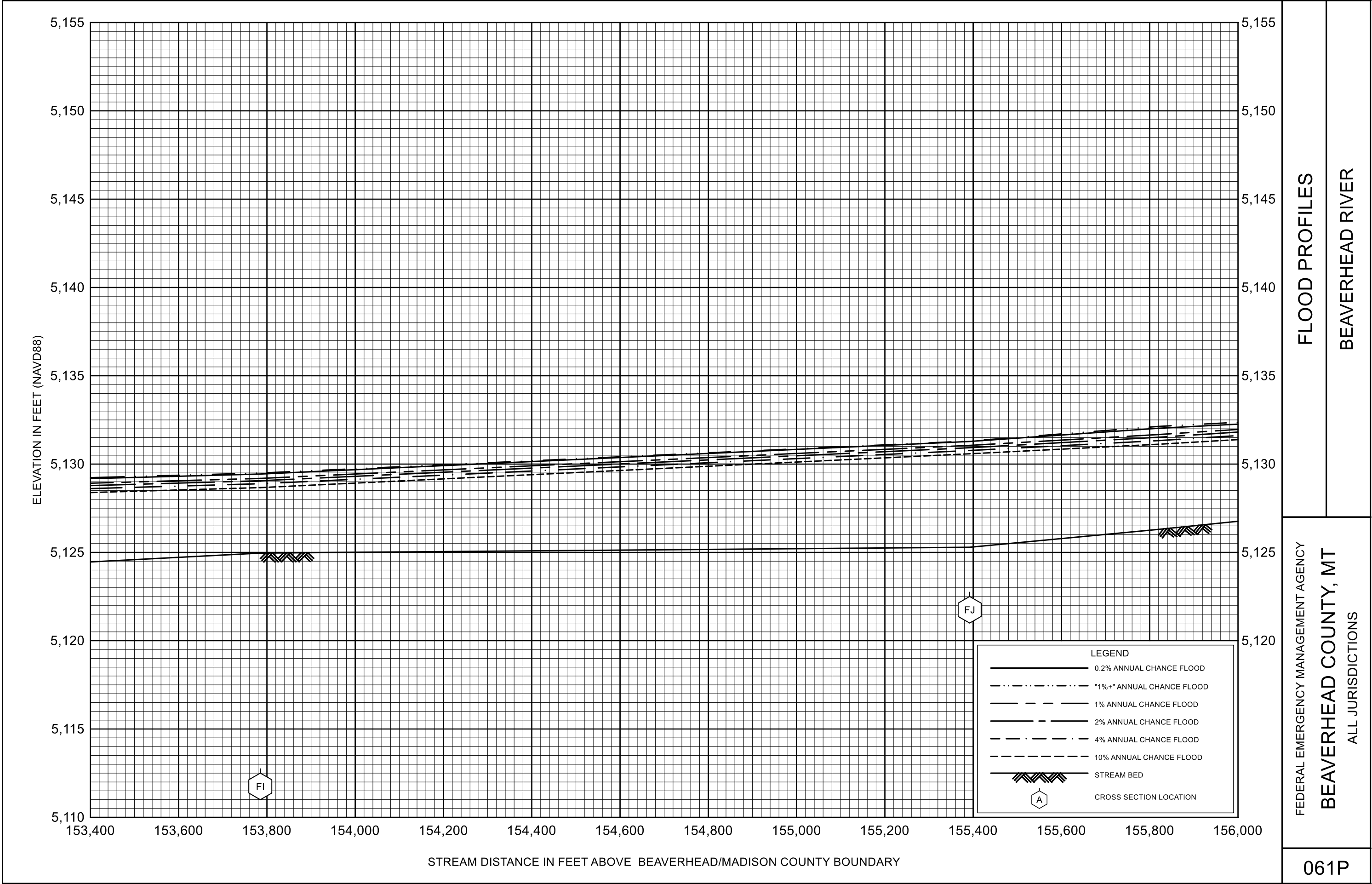
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

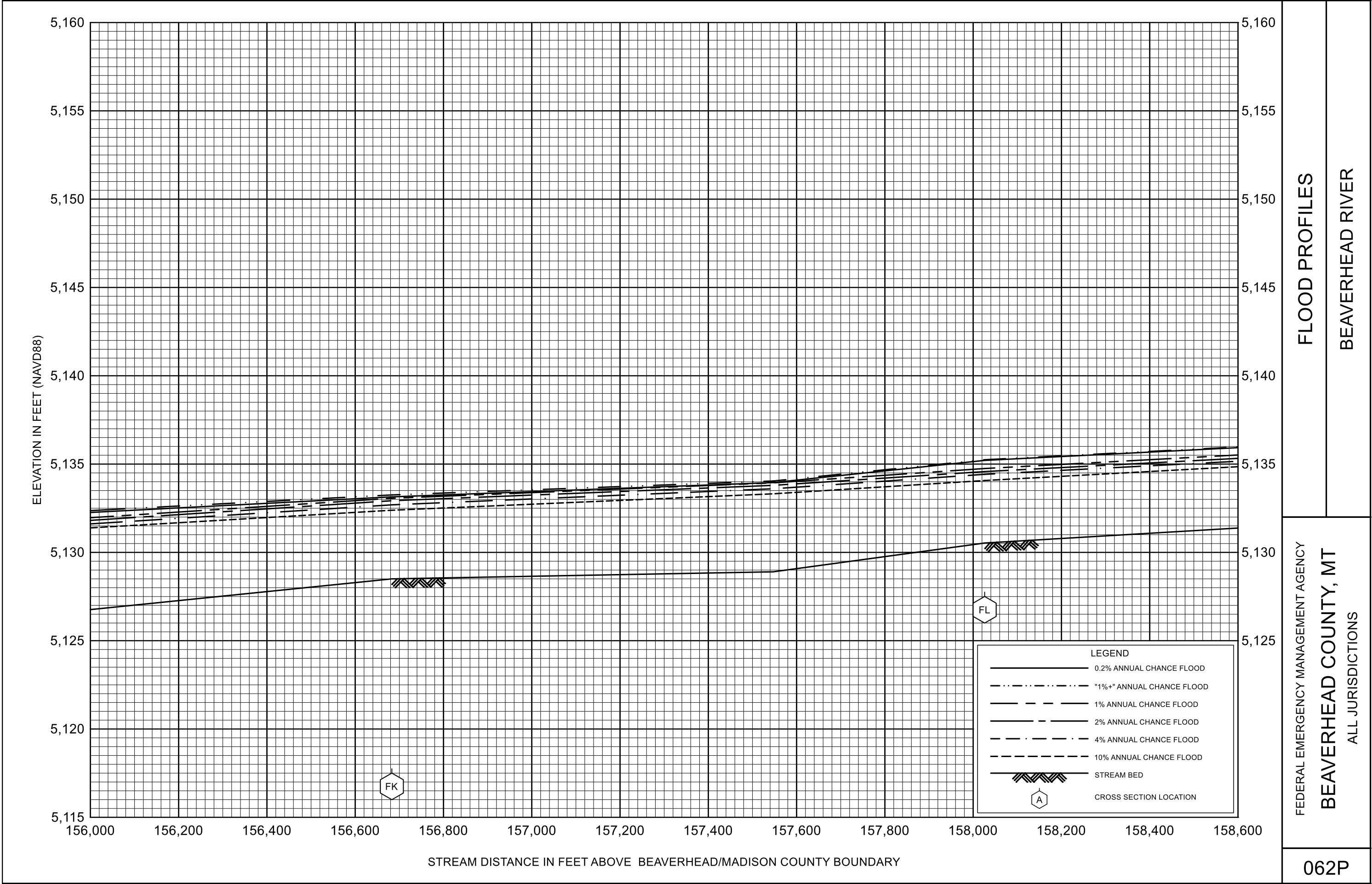
ALL JURISDICTIONS





FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



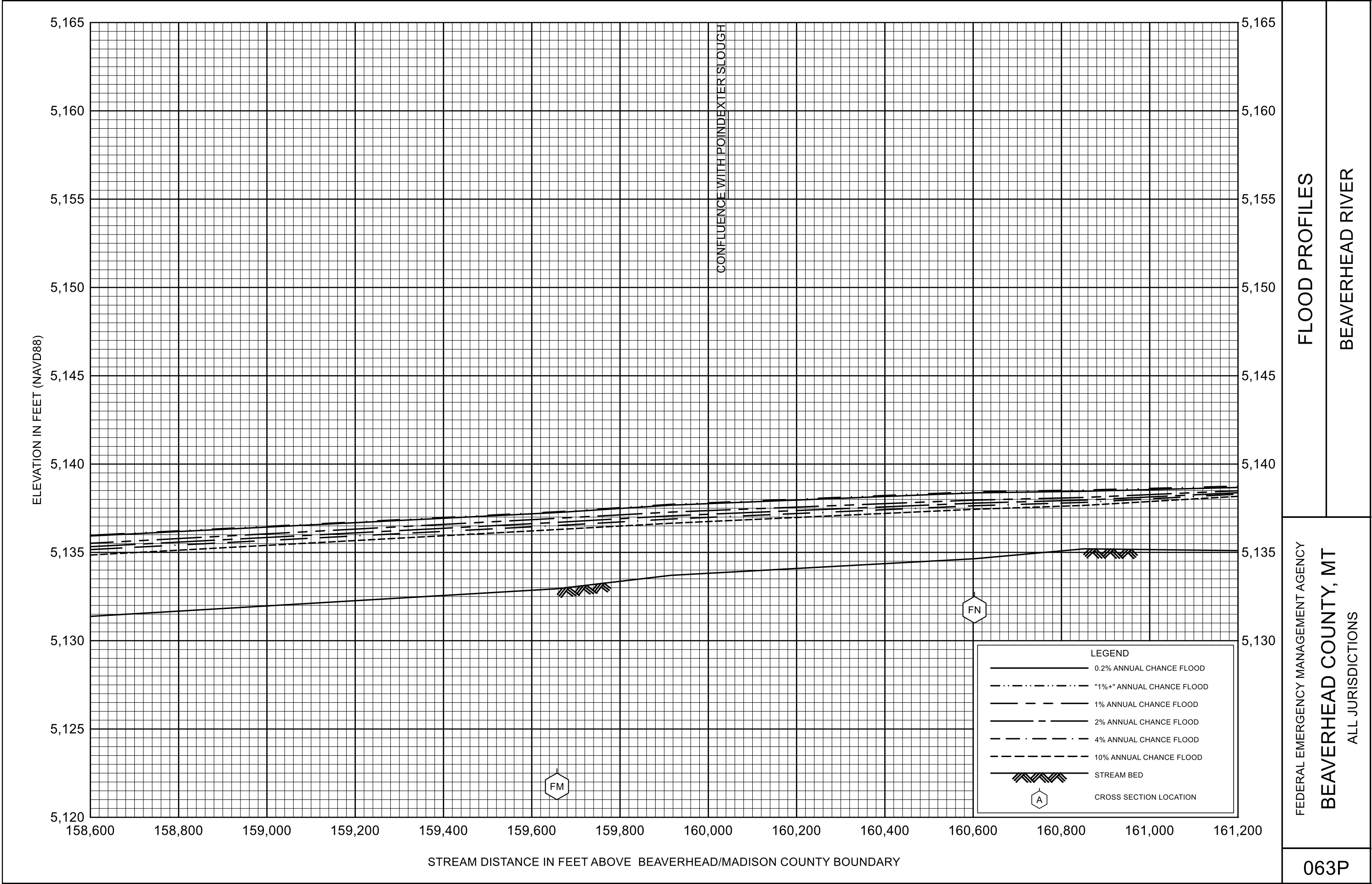
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



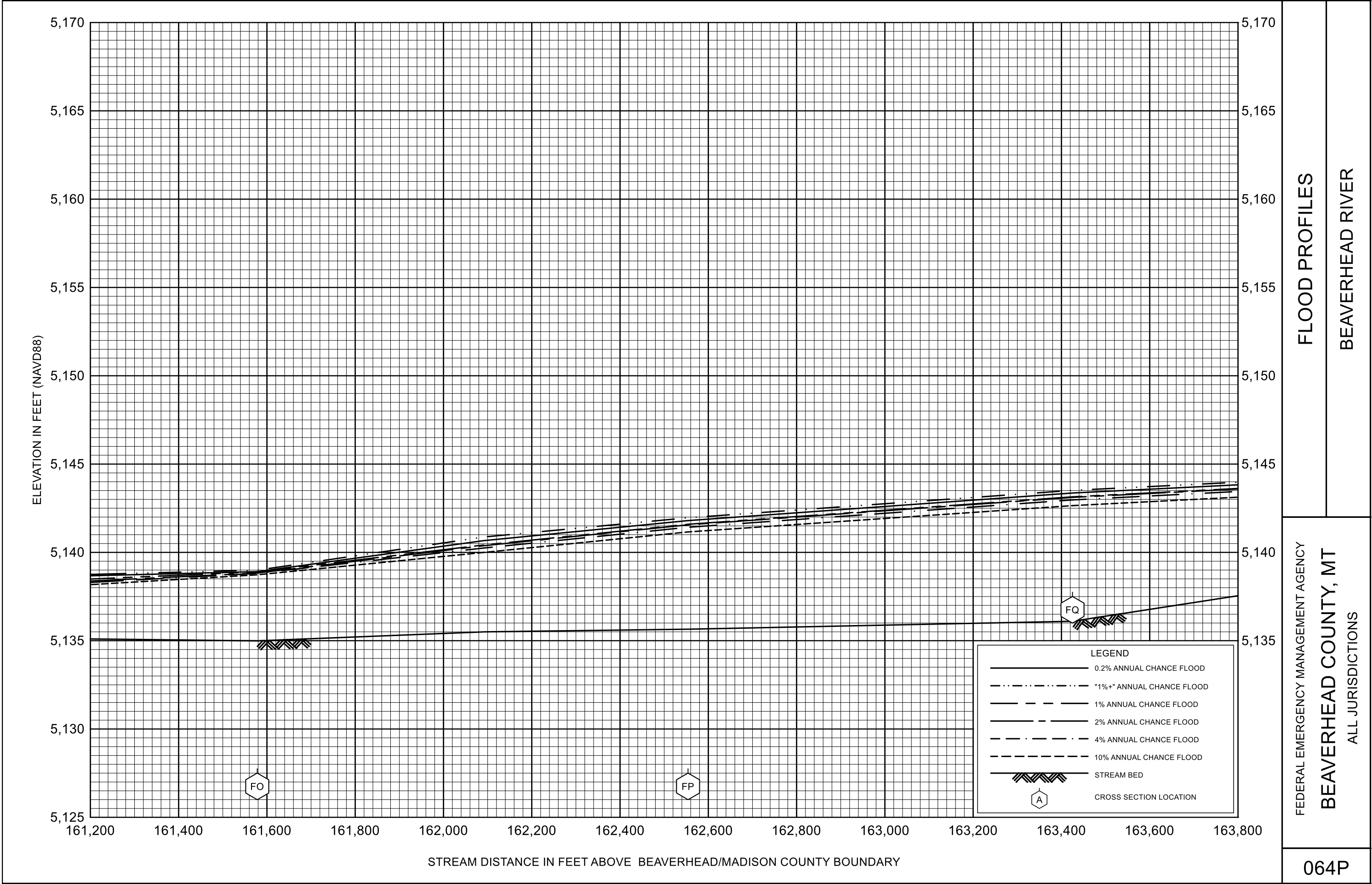
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



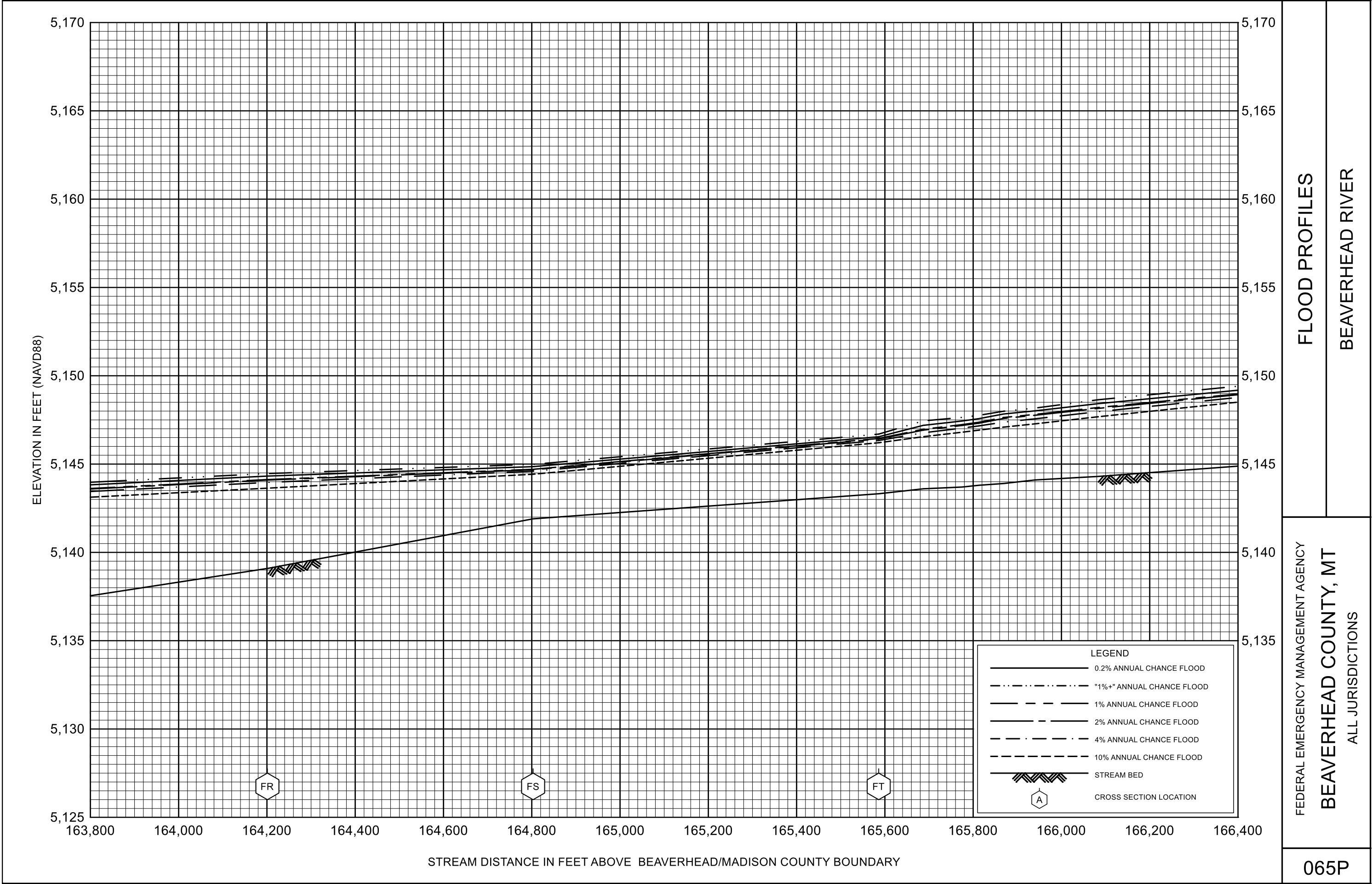
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



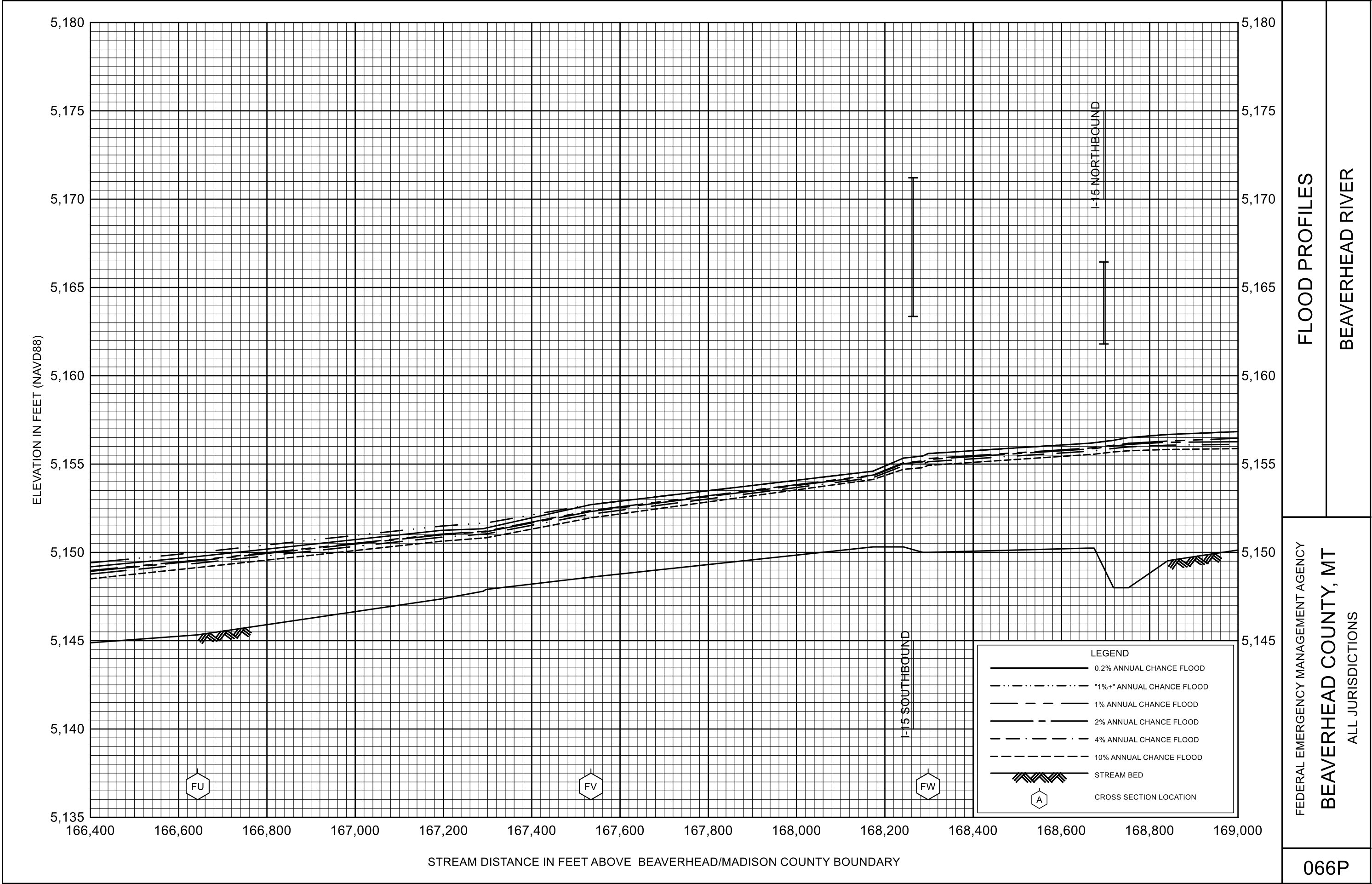
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



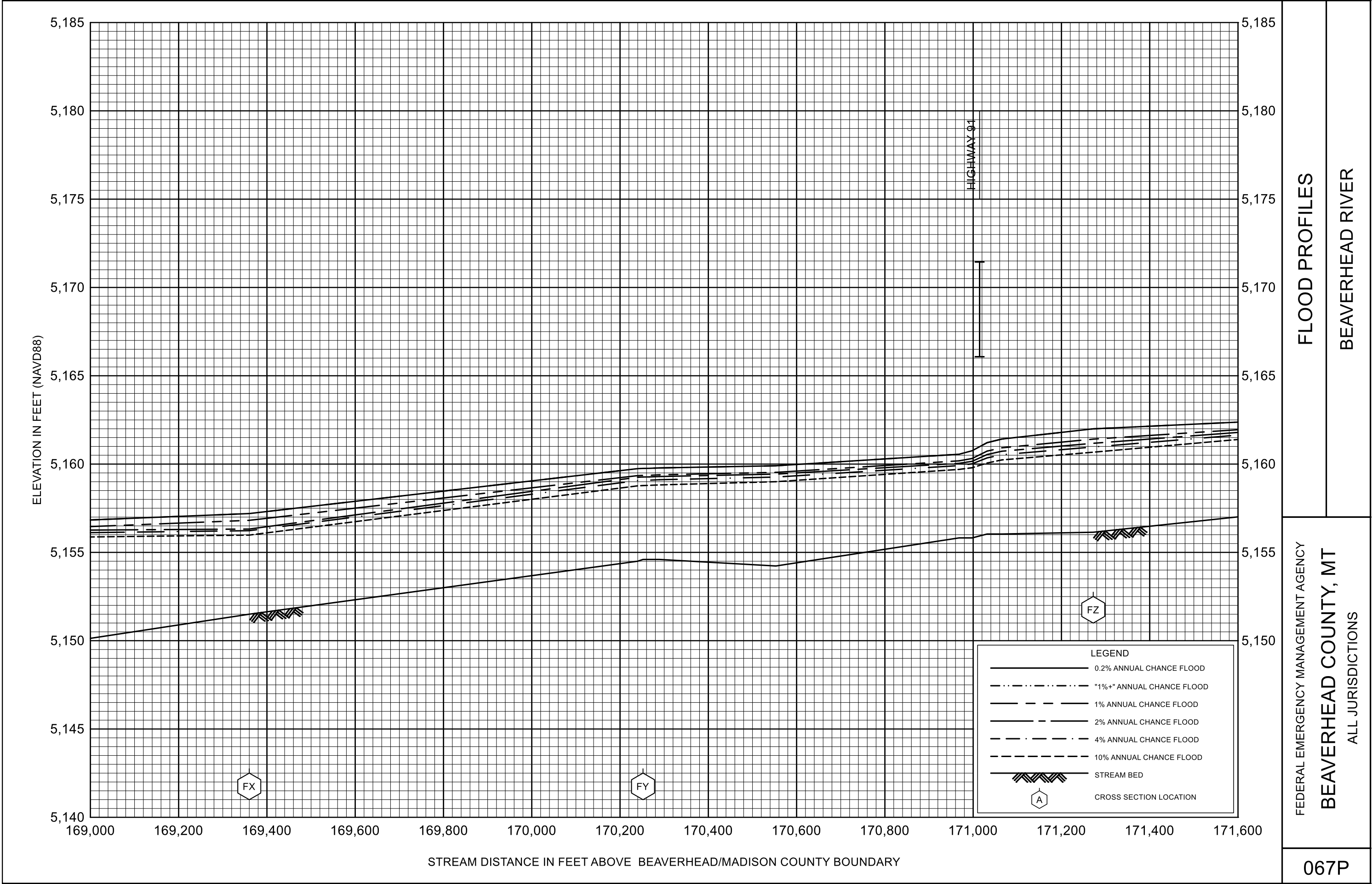
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



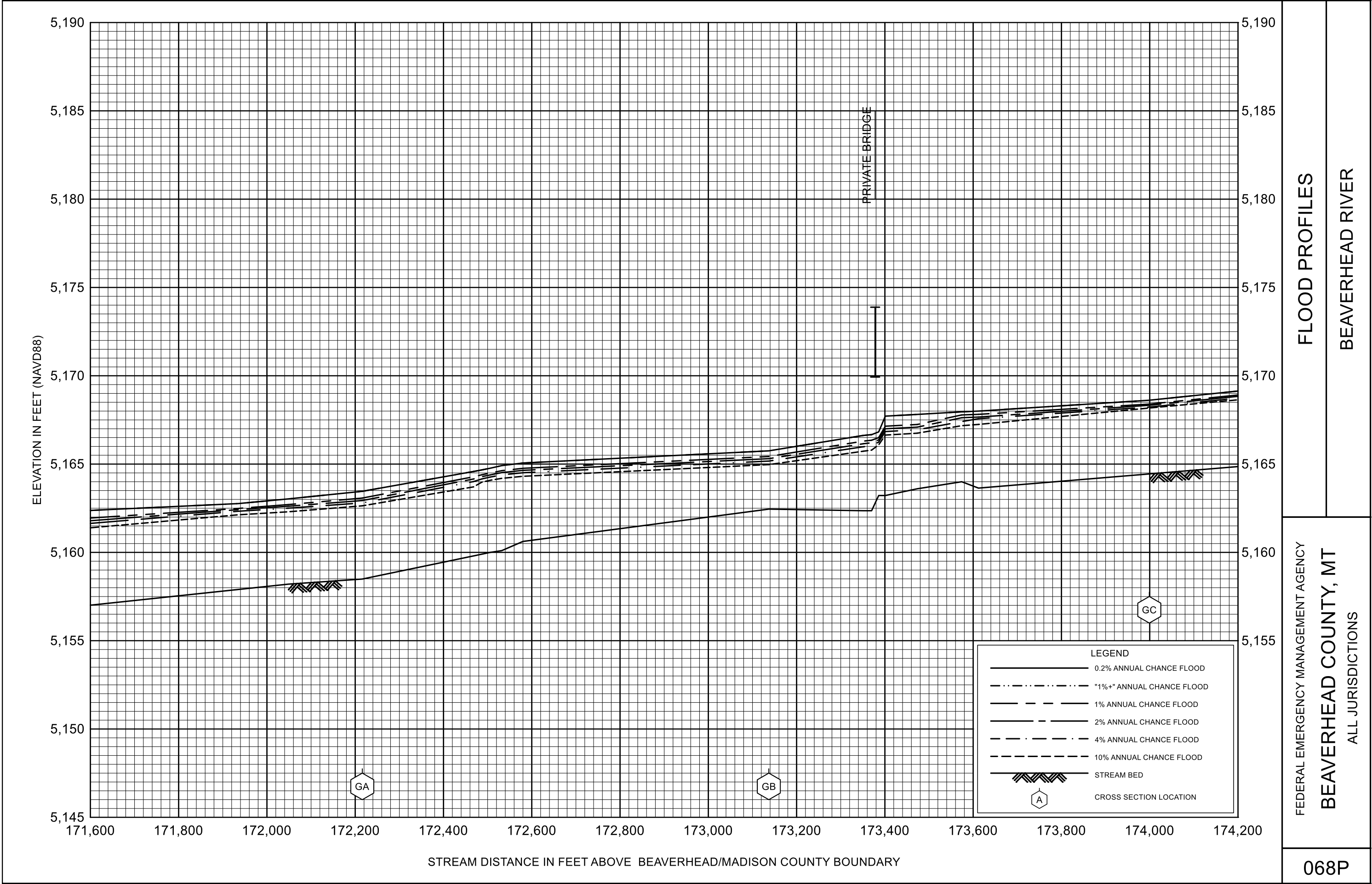
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

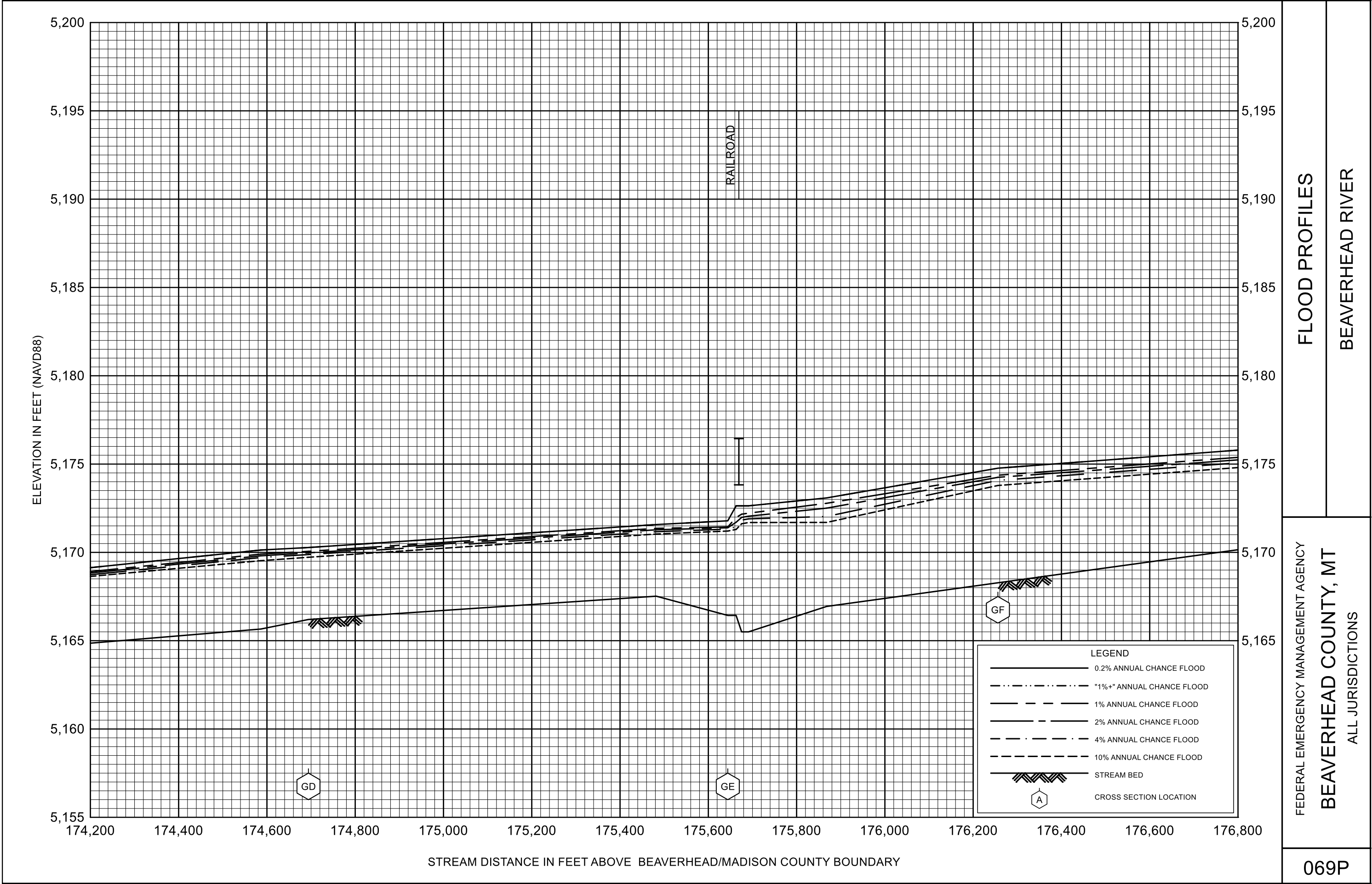
BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



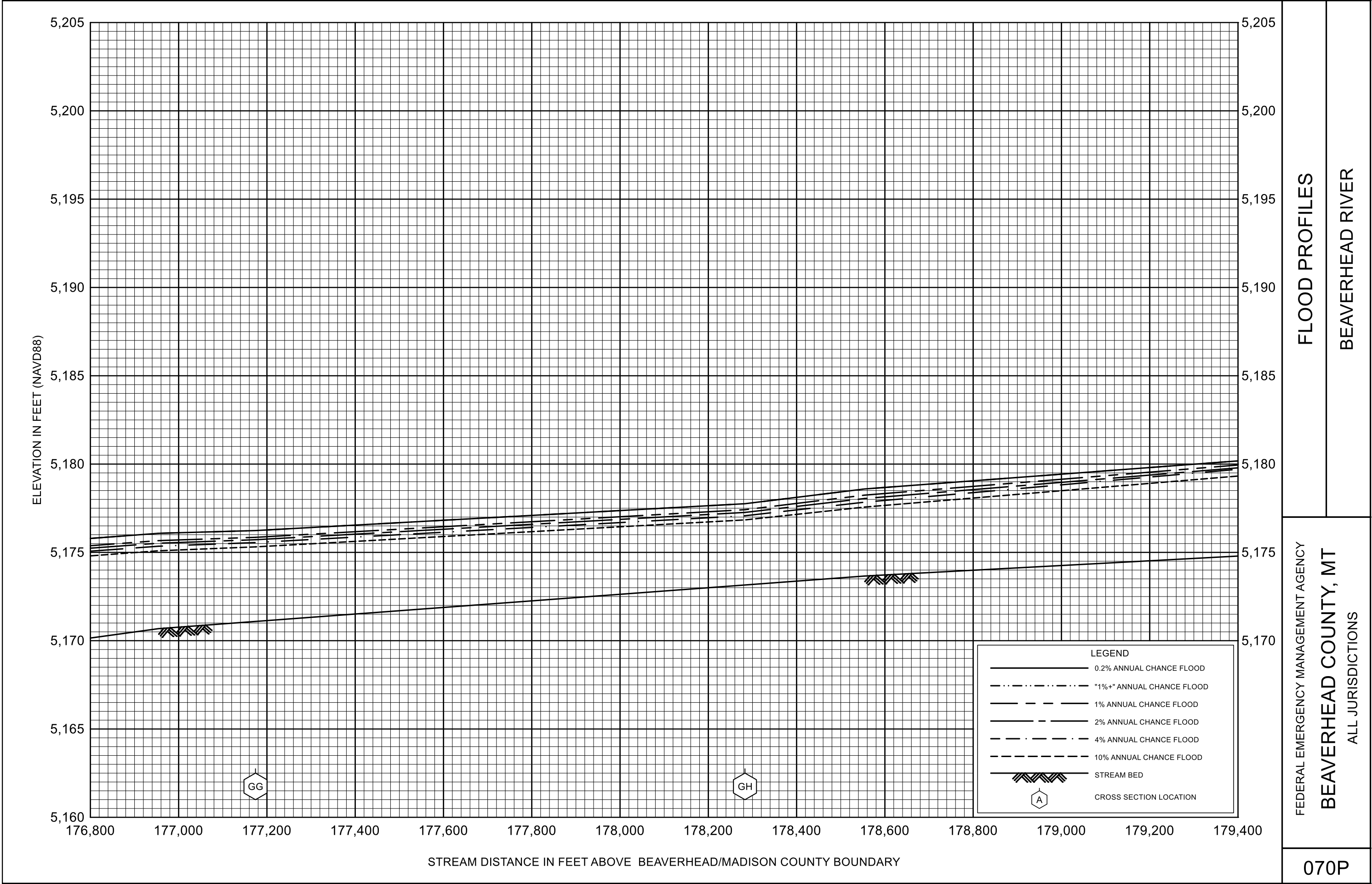
FLOOD PROFILES
BEAVERHEAD RIVER

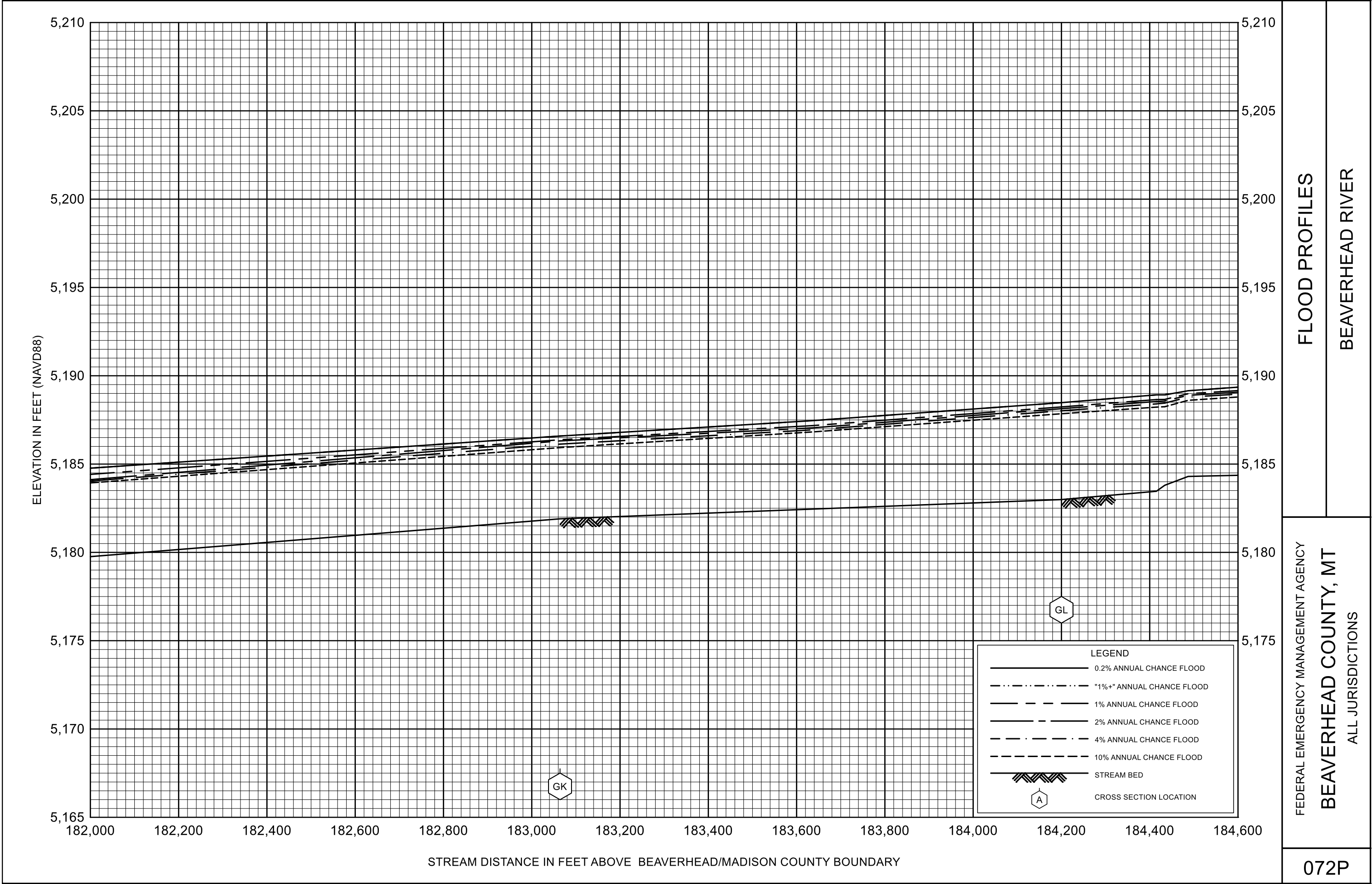
FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS



FLOOD PROFILES
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
BEAVERHEAD COUNTY, MT
ALL JURISDICTIONS





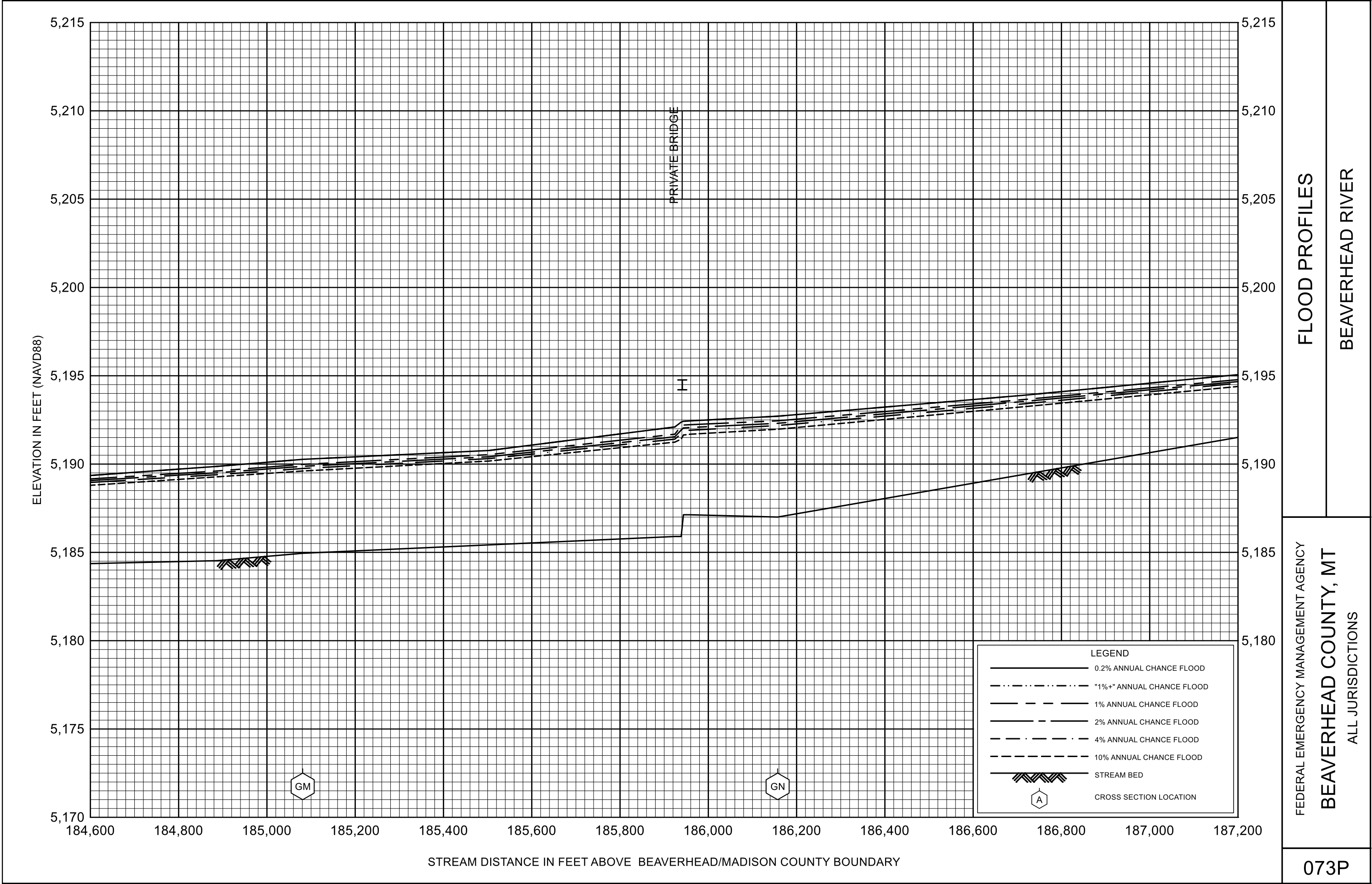
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



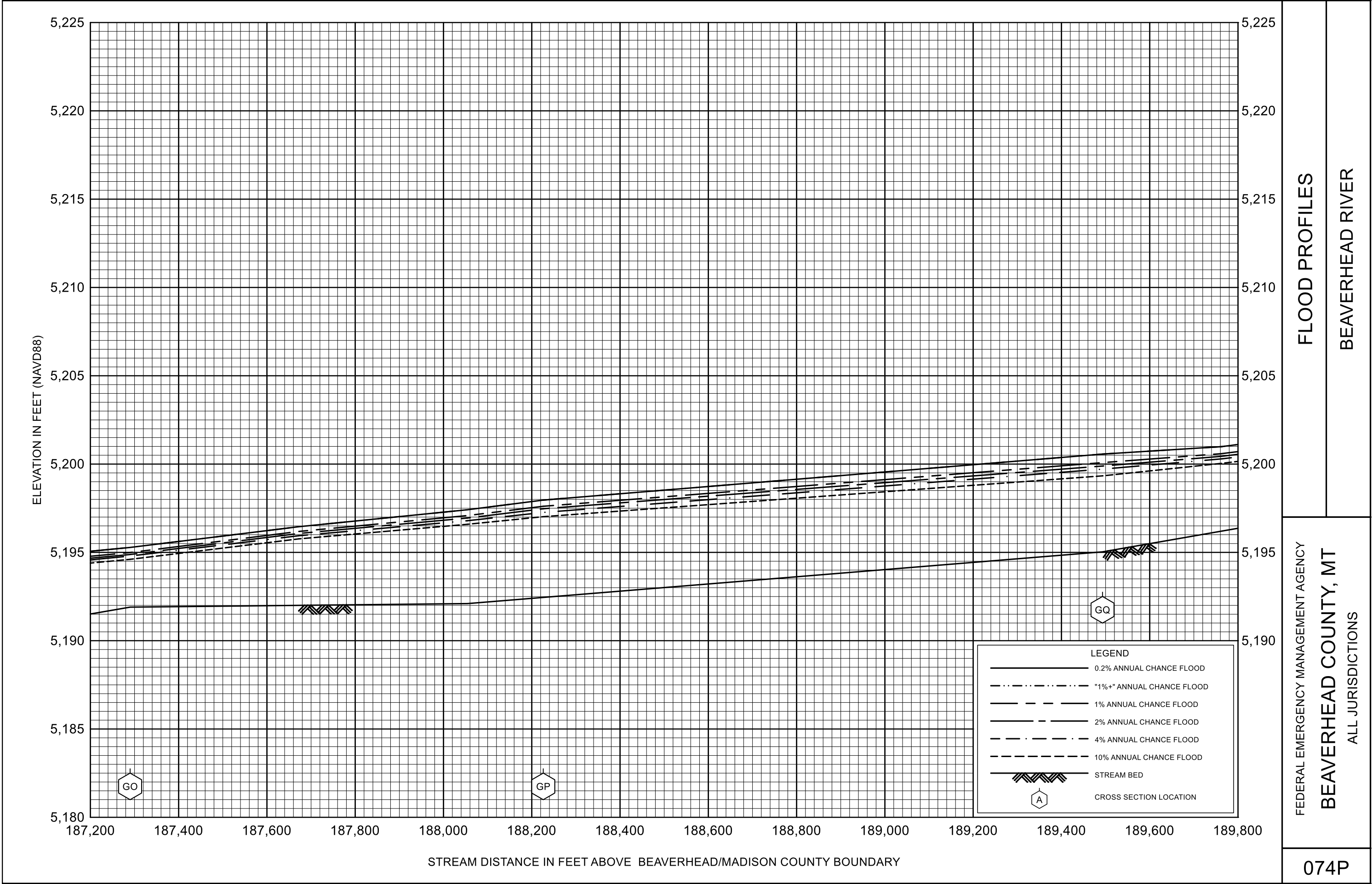
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



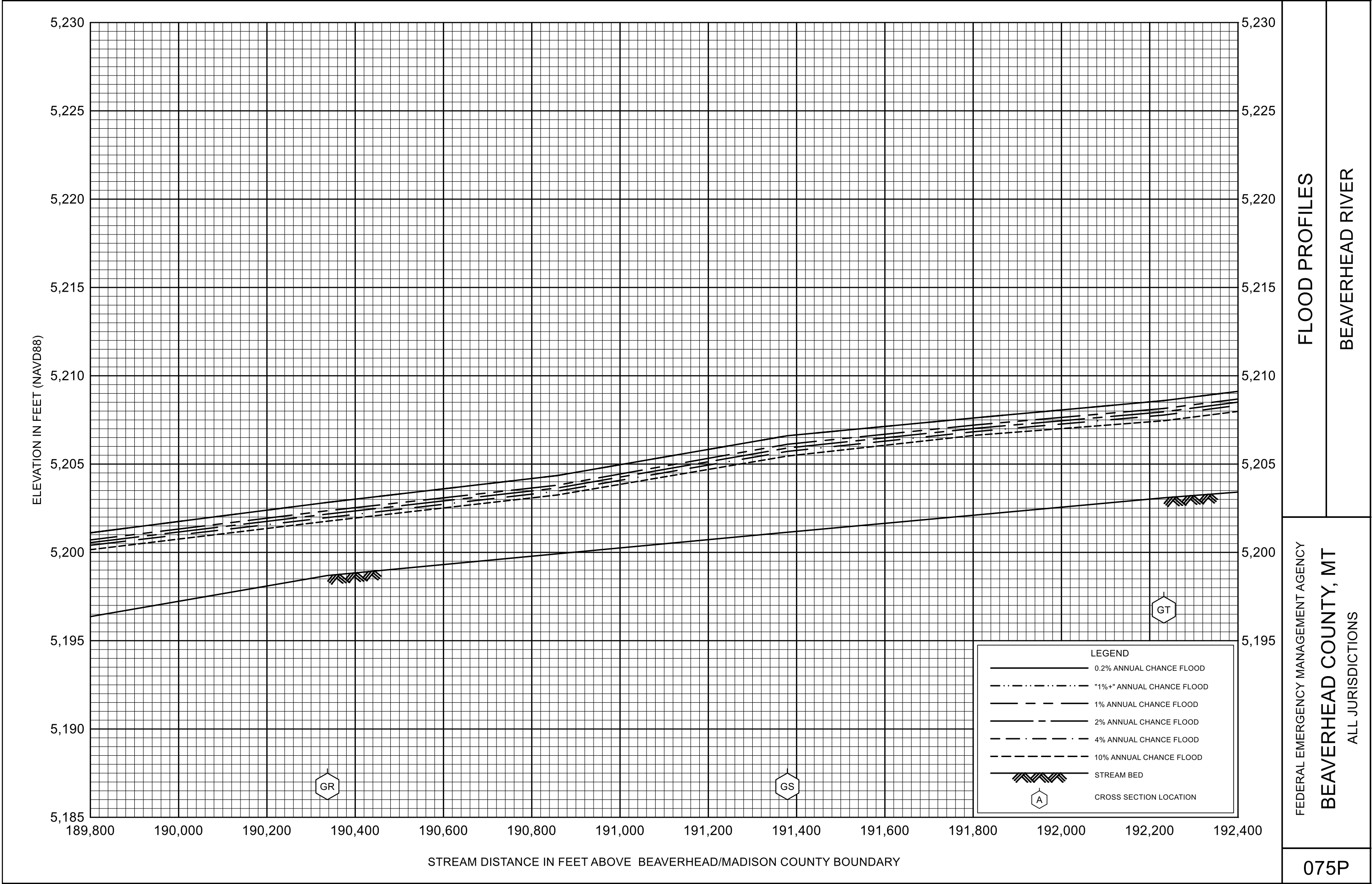
FLOOD PROFILES

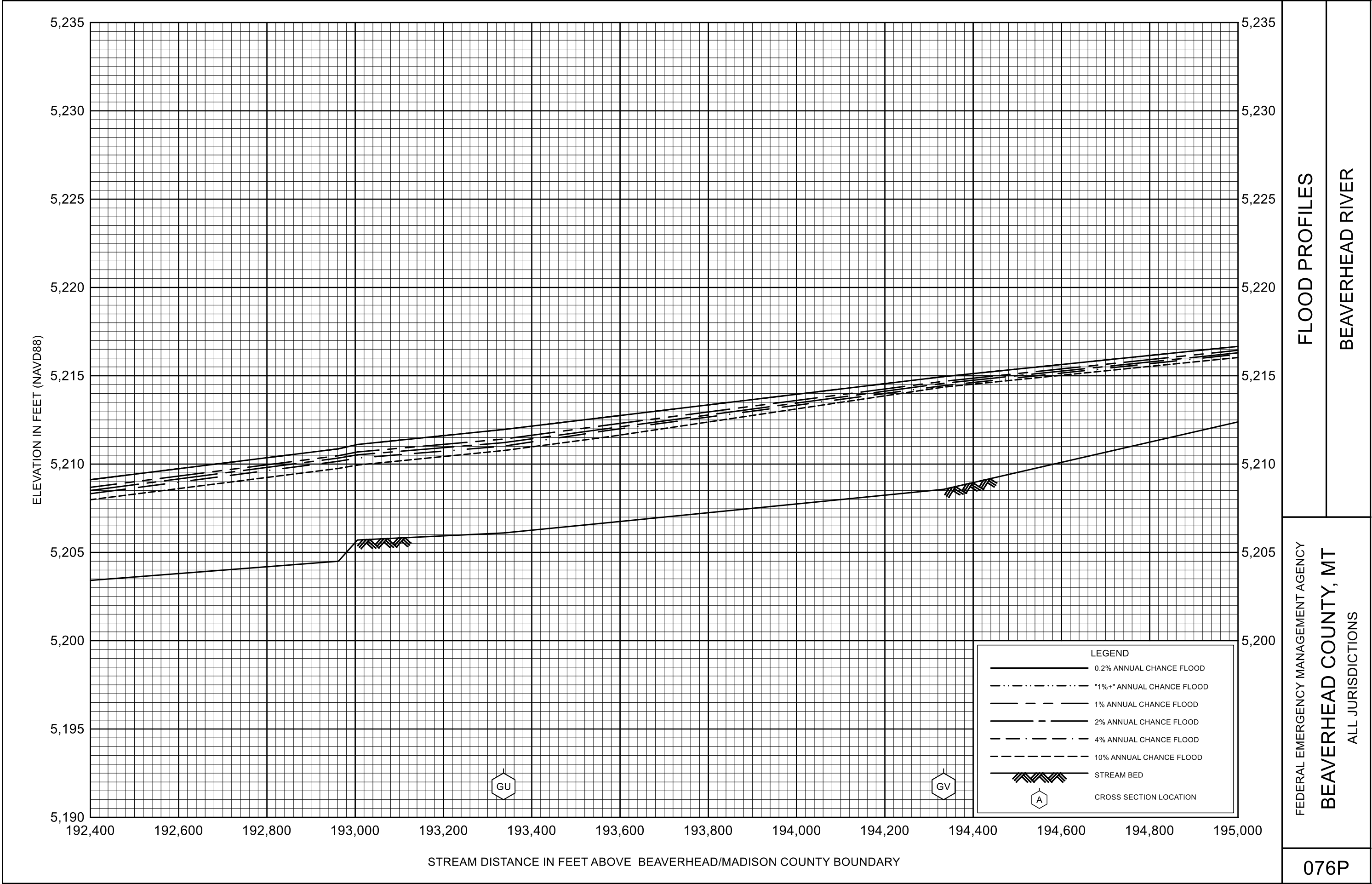
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





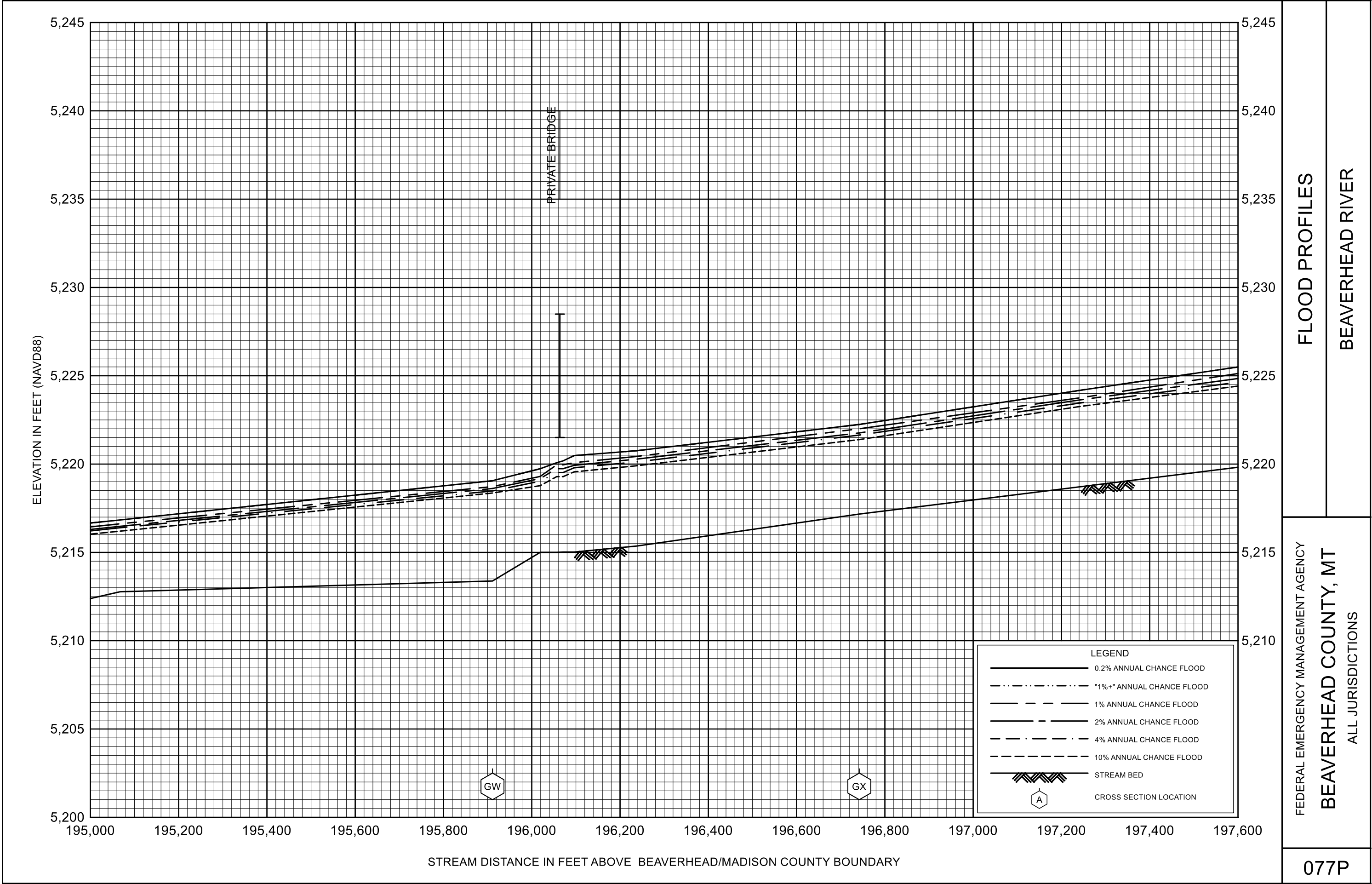
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



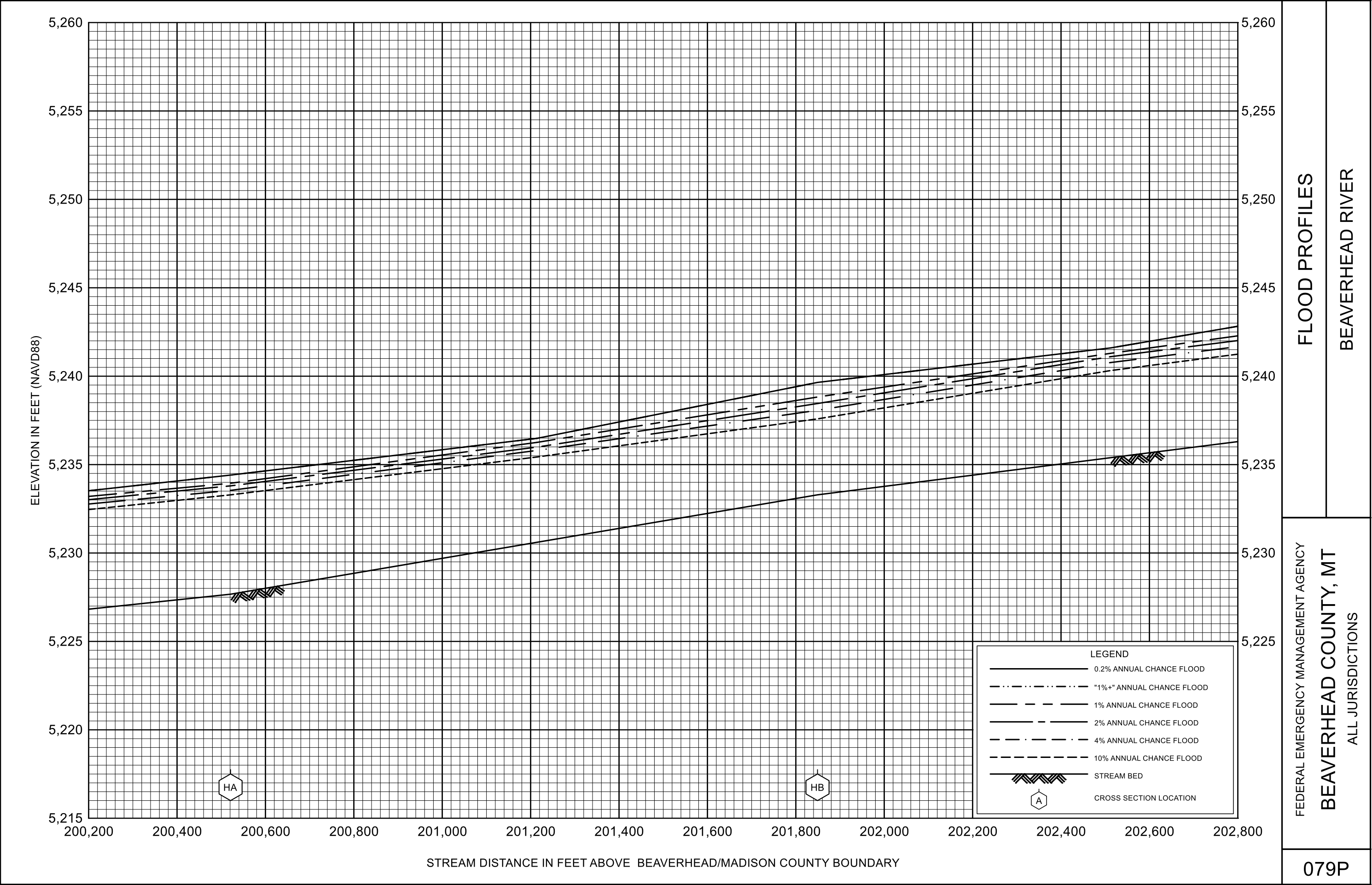
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



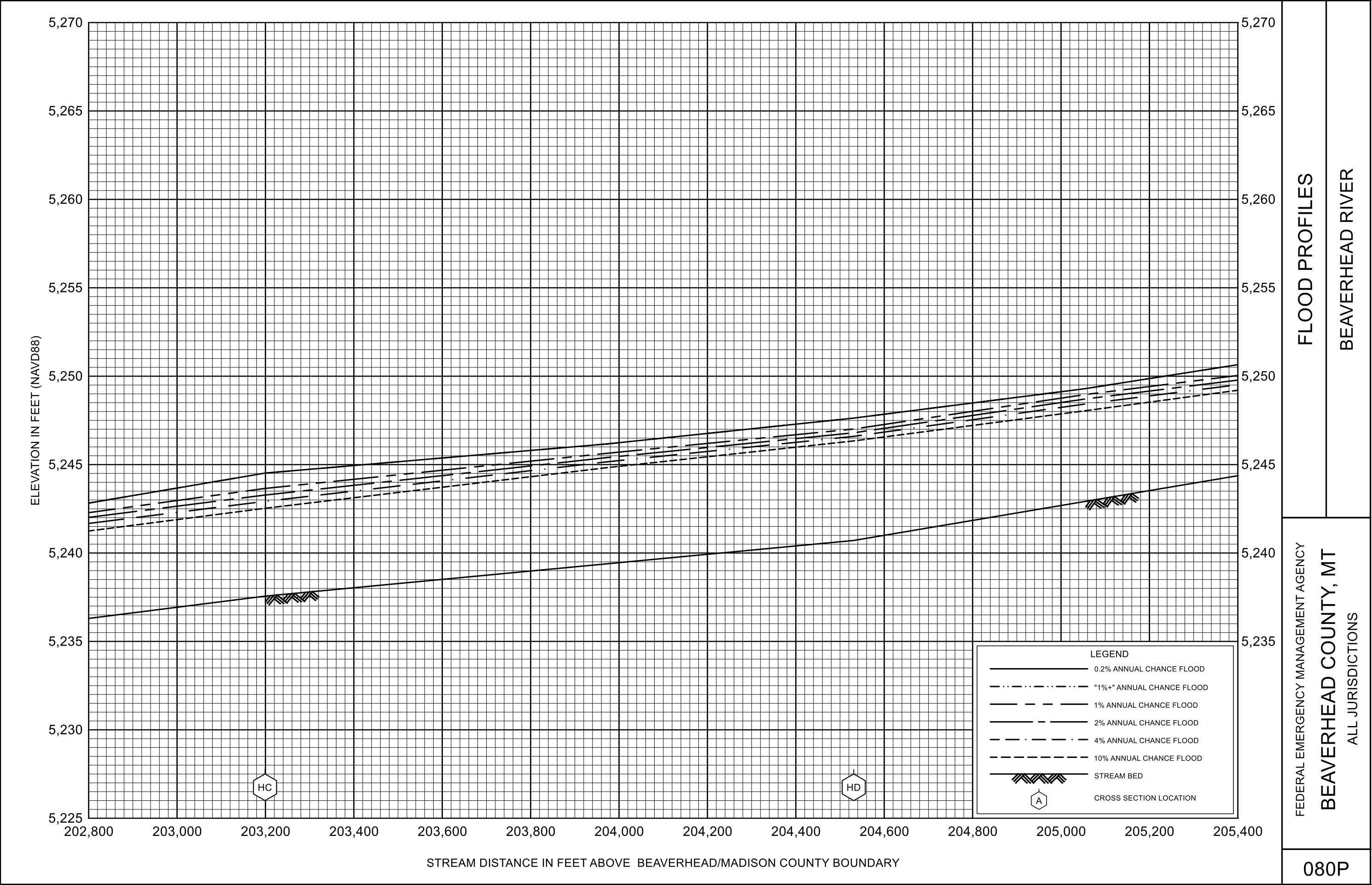
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



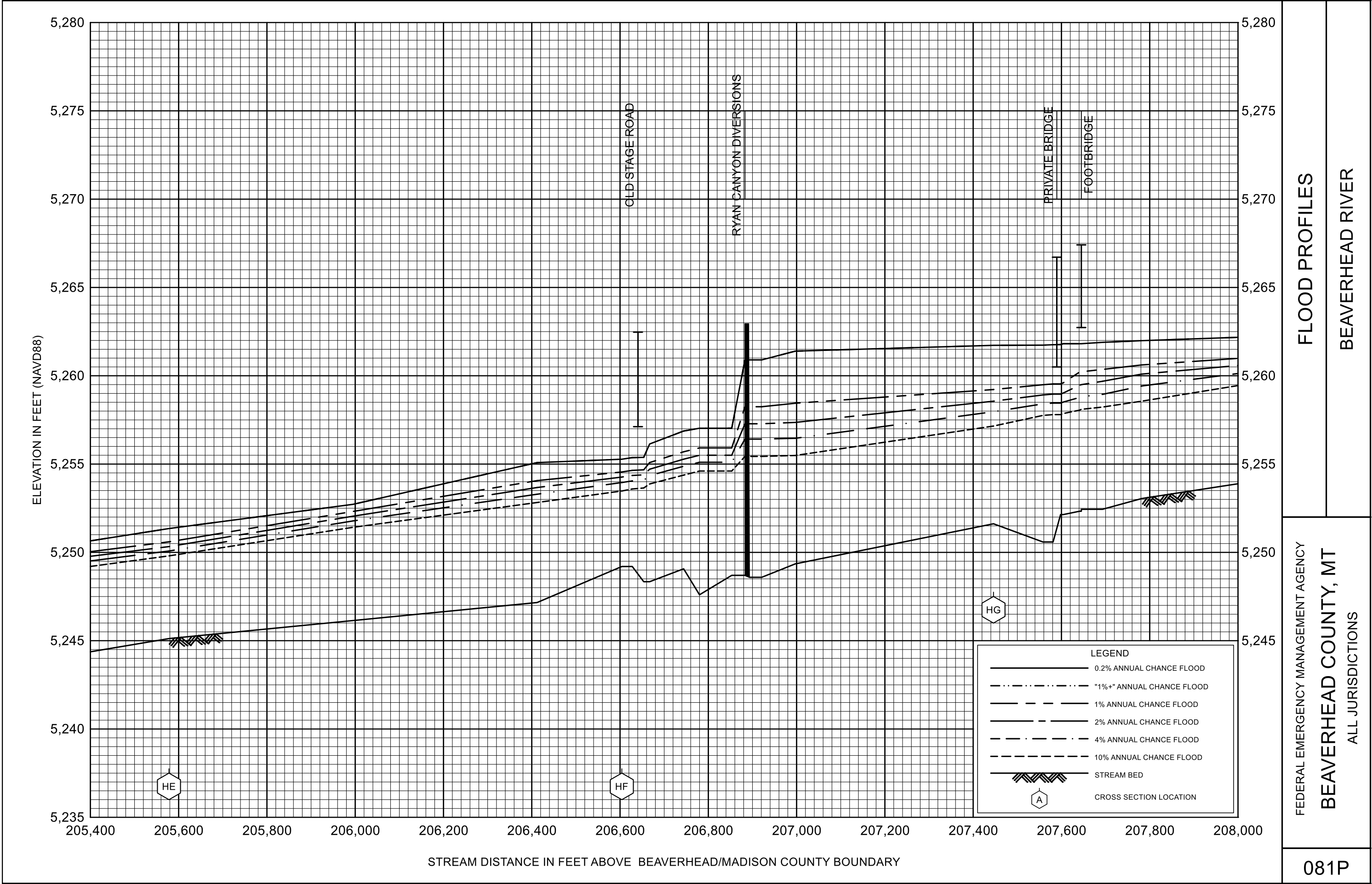
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



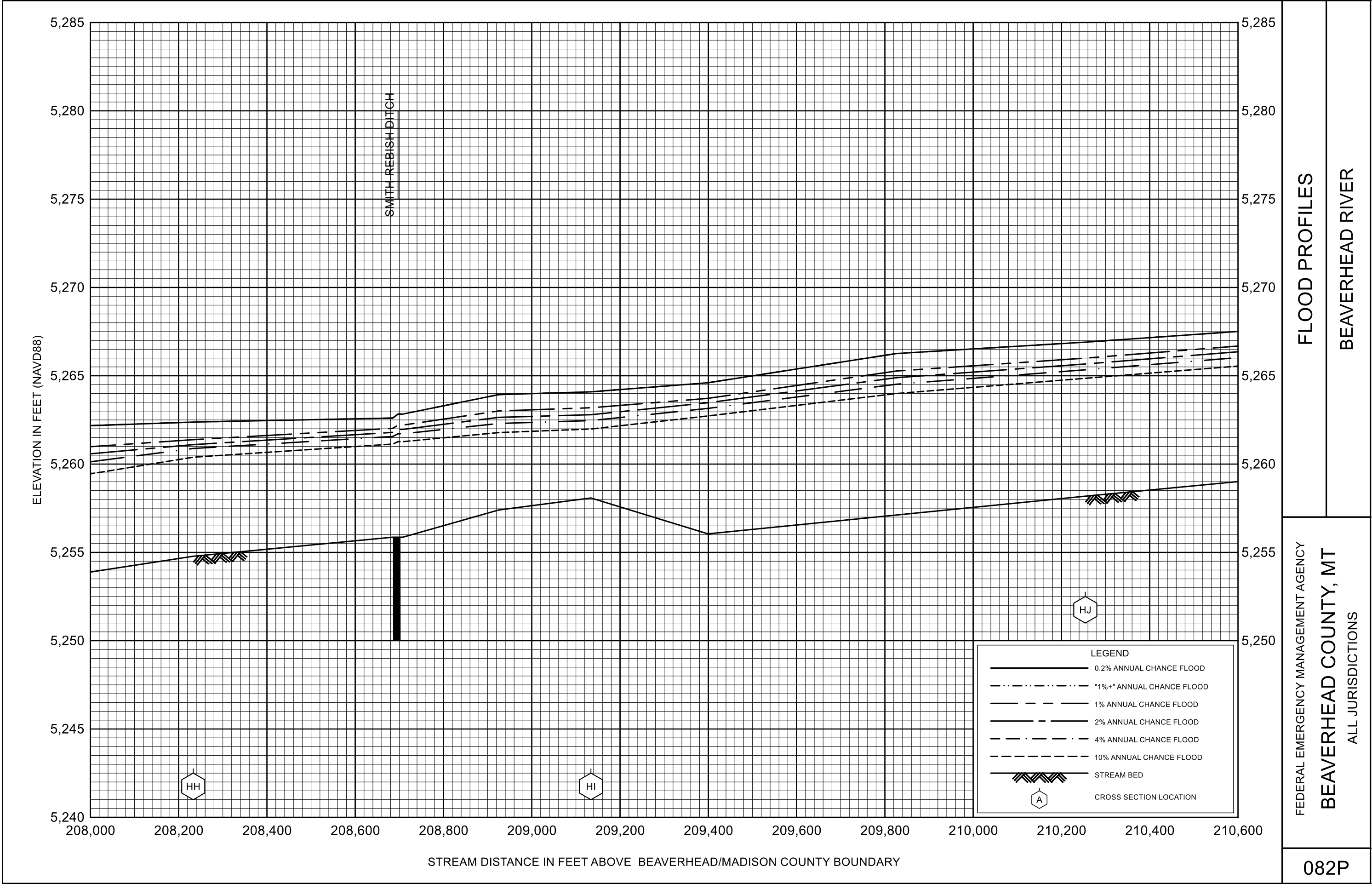
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



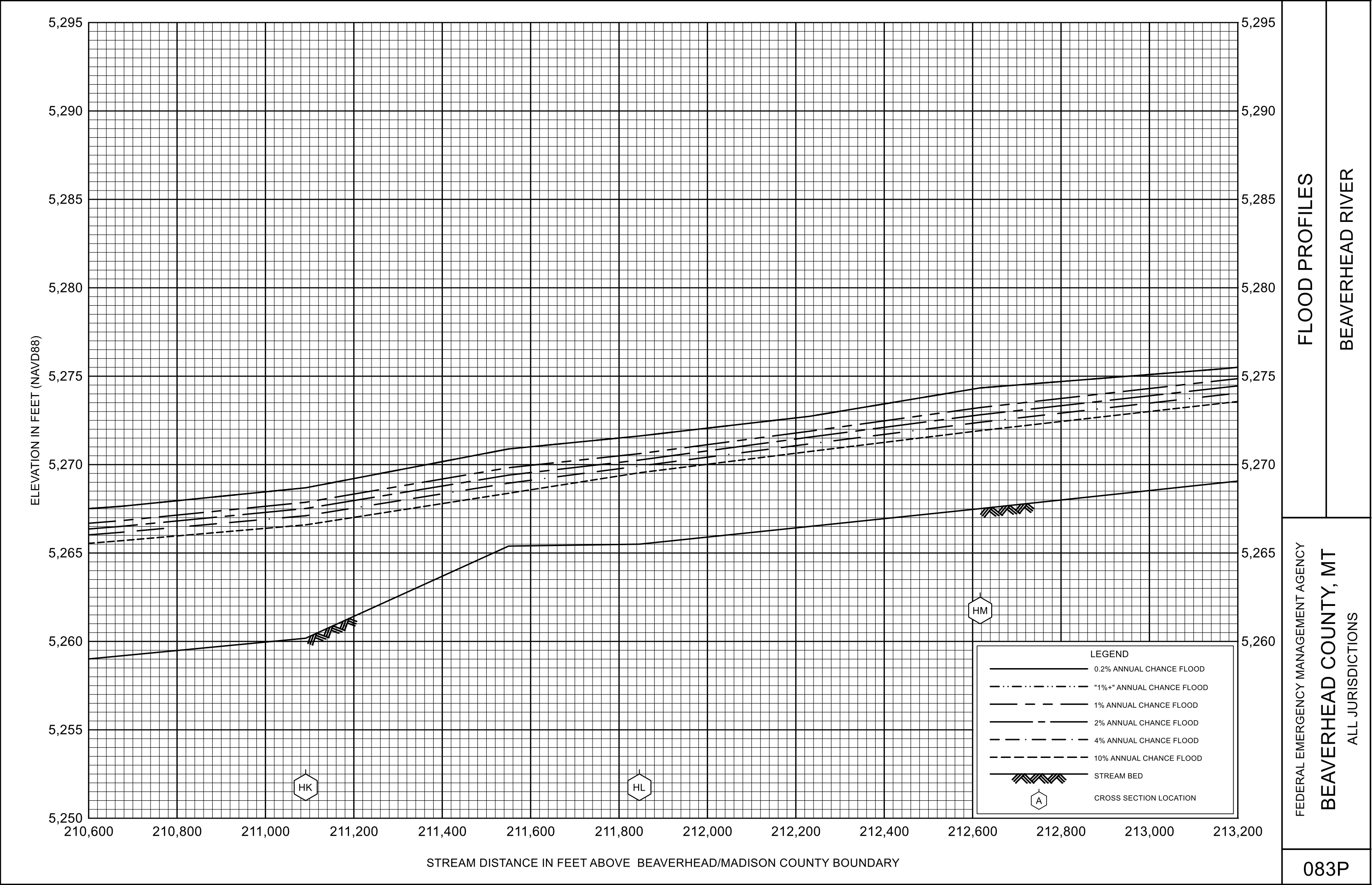
FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS



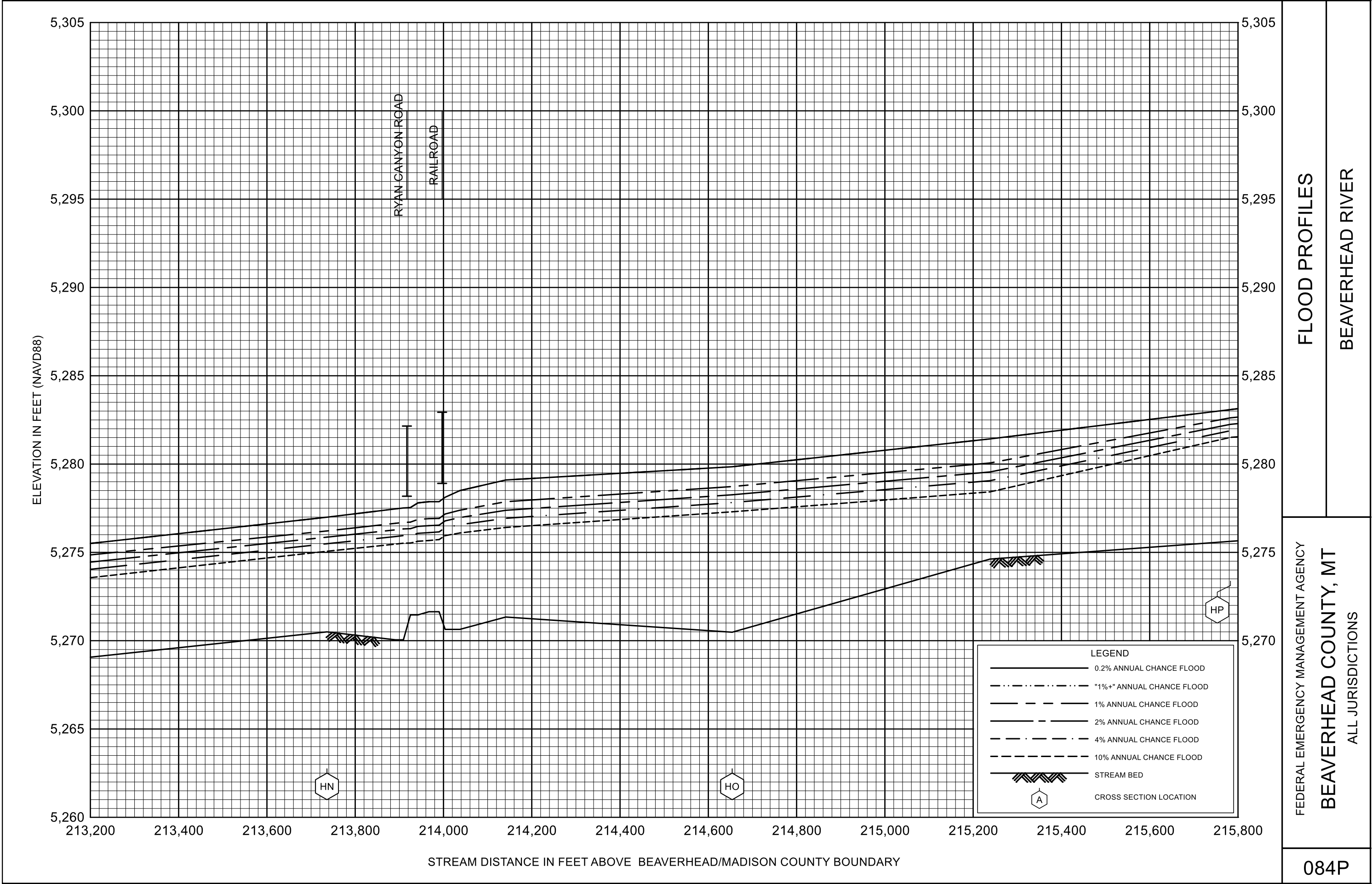
FLOOD PROFILES

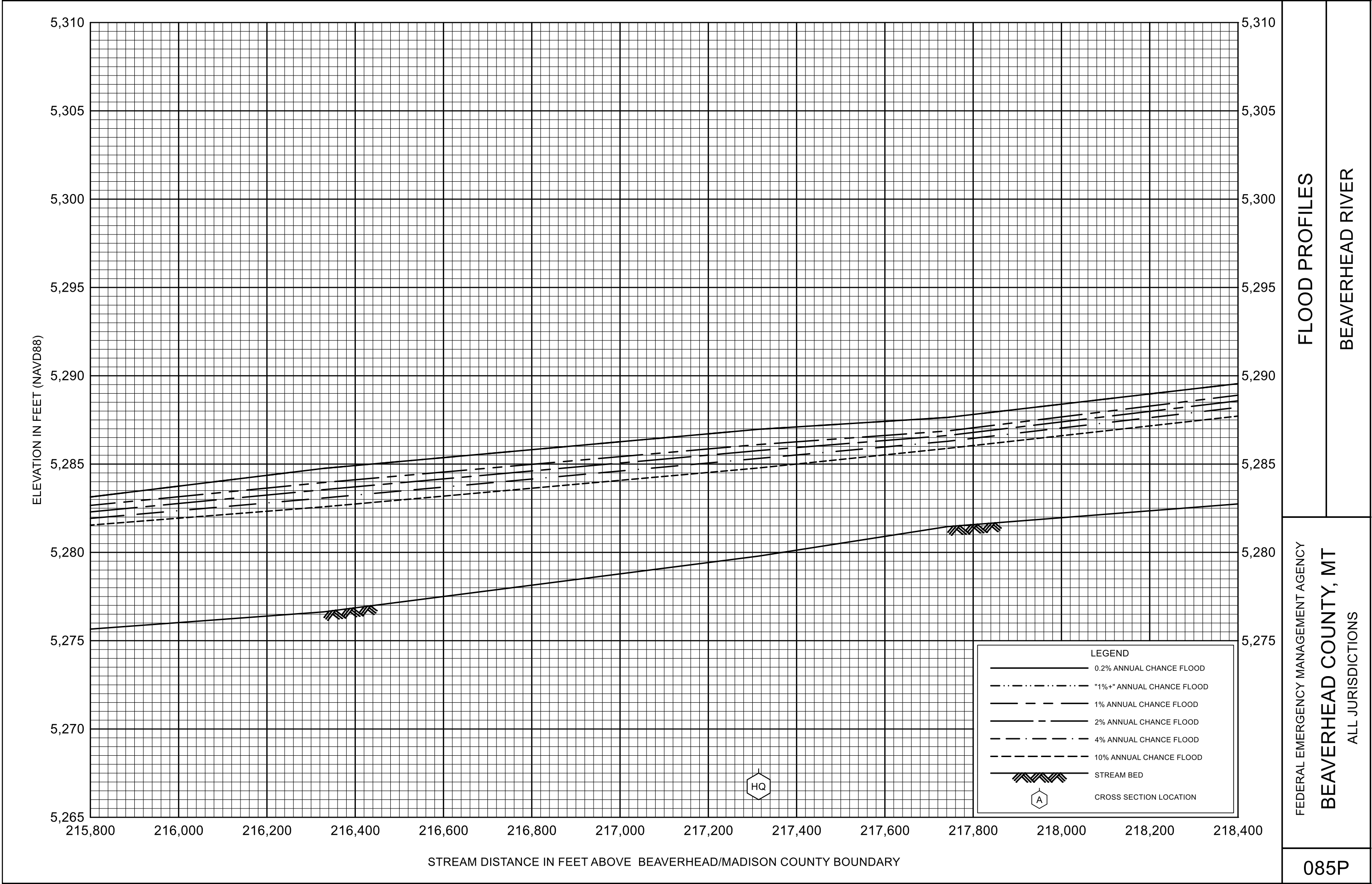
BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS





FLOOD PROFILES

BEAVERHEAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEAVERHEAD COUNTY, MT

ALL JURISDICTIONS

